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H. Greene
1990

Catalogue #1994-2146

Journal

1990 Costa Rica: La Selva Biological Station
Arizona: Cochise Co.
New Mexico: Hidalgo Co.
Kenya: Nairobi
Uganda: Bwindi Forest Reserve
Costa Rica: La Selva Biological Station

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January 21 No data, hatched at Philadelphia Zoo in 1978
1994 Elaphe guttata (albino)
No data, purchased from Louis Porras
1995 Agkistrodon blomhoffi

1986 Agkistrodon contortrix coll. B. E. Dial

1997 Sistrurus miliaris coll. T. A. Sinclair

1998 Sistrurus catenatus
No specific locality, probably near Douglas, Cochise Co., Arizona
1999 Heloderma suspectum brought by dog to Wildlife Center Fall, 1989
No data, presumably Australia, rec'd from U.S. Fish & Wildlife Svc.
2000 Lialis burtonis
near San Simon, Cochise Co., Arizona
2001 Tantilla nigriceps coll. T. H. Snell, October 1989
No data, probably north Africa
2002 Cerastes cerastes rec'd from Steinhart Aquarium ≈1983
No data, rec'd from U. S. Fish & Wildlife Service
2003 Crotalus durissus
No data, hatched or born at Dallas Zoo
2004 Epicrates subflavus
2005 Corallus caninus
2006 Corallus caninus
2007 Chondropython viridis
2008 Chondropython viridis
2009 Chondropython viridis

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January 21 No data, hatched in captivity

2010 Python regius purchased from T. Moisie

Slopes of Santa Anna Mtns. on Rt. 74, 0.7 mi W. Hwy 71, Riverside Co., California

2011 Crotalus ruber coll. March 2, 1979

Costa Rica

2012 Lachesis muta hatched in captivity

February 16 No data, purchased from "Zoo Herp," Sandy, Utah

2013 Deinagkistrodon acutus 12g

April 13 0.5 mi E. Llano Rd. on Ludwig Rd., Sonoma Co., California

2014 Ambystoma tigrinum coll. C. Brown, November 25, 1989 large ♂, 3 spots on head

0.1 mi. S. of Millbrae on Primrose Rd., Sonoma Co., California

2015 Ambystoma tigrinum coll. C. Brown, January 13, 1990 4 spots on head

April 20 3.9 mi N. of Natural Trails Hwy on Kelbaker Rd., San Bernardino Co., California

2016 Trimorphodon biscutatus AOR after dark, coll. B. E. Dial 400 + 63 mm 14.5g

≈9 mi. SE Kelso on Kelbaker Rd., San Bernardino Co., California

2017 Arizona elegans 7.1g AOR coll. S. M. Secor, regurg. ♂ Uta stansburiana ≈2.2g LF

≈6 mi. N. I-40 on Kelbaker Rd., San Bernardino Co., California

2018 Lampropeltis getulus AOR coll. K. Autumn

June 3 Cove Spring, E. side of Granite Mtns., San Bernardino Co., California

2019 Lichanura trivirgata found dead by F. Smith, May 25, 1990

June 4 10.9 mi S. Kelso on Kelbaker Rd., San Bernardino Co., California

2020 Crotalus scutulatus AOR 2030 hr. 36g

June 16 No data, received from S.F. Humane Society

2021 Platysternon megacephalum rec'd May, 1990

Lafayette Reservoir, Contra Costa Co., California

2022 Nerodia rhombifera } collected June 2, 1990,

2023 Nerodia rhombifera } Miles Young

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July 7 La Selva Biological Station, Prov. Heredia, Costa Rica
2024 Bufo melanochloris coll. M. Kaspari, June 17, 1990, see field notes
2025 Bothrops asper coll. June 22, 1990
1310+253 mm, 515g
2026 Corallus annulatus coll. E.D. Brodie & O. Vargas, April 4, 1990, see notes
365g
2027 Sciurus granatensis removed from stomach of HWG 2026
2028 Lachesis muta coll. July 7, 1989, see field notes
2029 Nothopsis rugosus coll. July 5, 1990, 5.8g, 248+110 mm, ♂
July 8 Chilamate, Puerto Viejo de Sarapiquí, Prov. Heredia, Costa Rica
2030 Bothrops nasutus coll. unkrown, ≈ June 25, 1990
"Rara Avis", near Horquetas, Prov. Heredia, Costa Rica
2031 Urotheca euryzona coll. C. Guyer, ≈ June 20, 1990 (stomach contents only)
July 11 La Selva Biological Station, Prov. Heredia, Costa Rica
531+291 mm, 38g
2032 Dendrophidion vinitor coll. C. Guyer, June 25, 1990; died today
2033 Sibon longifrenis coll. ≈ June 23, 1990, M. Fogden
2034 Imantodes cenchoa coll. ≈ July 5, 1990
2035 Spilotes pullatus coll. ≈ July 1, 1990, M. Fogden
2036 Bothrops nasutus coll. June 29, 1990
Monteverde, Puntarenas Prov., Costa Rica
2037 Bothrops nigroviridis coll. June, 1990, M. & P. Fogden
July 12 La Selva Biological Station, Prov. Heredia, Costa Rica
2038 Nothopsis rugosus 2133h. 1.7g, 170+77, ♀?
2039 Corallus annulatus coll. ≈ July 1, 1990
July 29 Kenya, no other data
2040 Telescopus semiannulatus } rec'd on loan from
2041 Telescopus semiannulatus } C.A.S., R. C. Drewes
N. edge of Granite Mtns., San Bernardino Co., California
2042 Crotalus mitchelli coll. April 22, 1990

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July 29 No data, received from J. B. Rosos
2043 Phelsuma madagascariensis
2044 Gekko gecko
2045 Gekko gecko
August 9 23.0 mi SW State Line Rd. on U.S. 80, Cochise Co., Arizona
2046 Sistrurus catenatus 1930hr AOR, 328+37 mm, 37 g 4 segments (button) feces saved
22.7 mi SW State Line Rd. on U.S. 80, Cochise Co., Arizona
2047 Sistrurus catenatus AOR 1945hr., 305+37 mm, 24 g, 3 seg (incl. button)
22.5 mi SW State Line Rd. on U.S. 80, Cochise Co., Arizona
2048 Bufo alvarius AOR 1948hr
22.0 mi SW State Line Rd. on U.S. 80, Cochise Co., Arizona
2049 Crotalus atrox AOR/DOR 1952 hr.
17.2 mi SW State Line Rd. on U.S. 80, Cochise Co., Arizona
2050 Rhinocheilus lecontei DOR 2040hr.
Portal, Cochise Co., Arizona
2051 Crotalus molossus ♀ 1230hr, basking in rockwall, skin folds post partum?, 848+42 mm, 228 g, 8 segments (incompl.)
August 10 Jct. Rucker Canyon Rd. and U.S. 80, Cochise Co., Arizona
2052 Eumeces obsoletus under rock 1015hr, 80+134 mm, 13.2 g
Mulberry Draw, 21.2 mi SW State Line Rd. on U.S. 80, Cochise Co., Arizona
2053 Eumeces obsoletus under board at 1110hr, 91+108 mm, 20 g
Jct. Rucker Canyon Rd. and U.S. 80, Cochise Co., Arizona
2054 Sceloporus undulatus 59+78 mm, 7.1 g
2055 Sceloporus undulatus 53+78 mm, 5.9 g
200 m. NE Paradise on Galeyville Rd., Cochise Co., Arizona
2056 Crotalus molossus coll. D.L. Hardy, July 27, 1990 710+40 mm 204 g
August 11 23.5 mi. SW State Line Rd. on U.S. 80, Cochise Co., Arizona
2057 Crotalus atrox AOR 2002 hr 936+87 mm, 630 g + 88 g of prey snake released

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August 11 24.4 mi SW State Line Rd. on U.S. 80, Cochise Co., Arizona
2058 Crotalus scutulatus AOR 2007 hr., 795 + 78 mm, 432 g
August 13 7.7 mi SW State Line Rd. on U.S. 80, Cochise Co., Arizona
2059 Lampropeltis getulus AOR 2109 hr
5.4 mi E. Portal on Portal Rd., Cochise Co., Arizona
2060 Bufo debilis ♀ AOR 2130 hr.
4.0 mi E. Portal on Portal Rd., Cochise Co., Arizona
2061 Bufo cognatus AOR 2136 hr.
8.4 mi. E. of U.S. 80 on Hwy 9, Hidalgo Co., New Mexico
coll. D. T. Hardy, August 11, 1990, 11.3 g rodent prey saved
2062 Crotalus atrox AOR 2052 hr, 717 + 45 mm ♀, 248.7 g released
August 15 ≈3 mi W. Portal on Rd. to Paradise, Cochise Co., Arizona
2063 Tantilla yaquia coll. T. A. Snell, June 15, 1990
No specific locality, Hidalgo Co., New Mexico
2064 Tantilla nigriceps } coll. B. Tomberlin and T. A. Snell,
2065 Gyalopion canum } July, 1990
E. of Portal on Portal Rd., Cochise Co., Arizona
2066 Gyalopion canum coll. T. A. Snell, July, 1990 – lost, fed to Diadophis
Portal, Cochise Co., Arizona
2067 Diadophis punctatus coll. B. Tomberlin, July, 1990
5.4 mi E. Portal on Portal Rd., Cochise Co., Arizona
2068 Bufo debilis ♂ AOR ≈ 2115 hr
August 16 10.8 mi. SW State Line Rd. on Hwy 80, Cochise Co., Arizona
2069 Crotalus scutulatus AOR 1923 hr
24.1 mi. SW State Line Rd. on Hwy 80, Cochise Co., Arizona
2070 Pituophis melanoleucus ~~AOR~~ DOR 1945 hr

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August 16 24.5 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona
2071 Crotalus scutulatus AOR/DOR 1953 hr
3.8 mi. E. Portal on Portal Rd., Cochise Co., Arizona
2072 Micruroides euryxanthus AOR/DOR 2136 hr., 9g, 349+29 mm
2073 Gyalopion canum AOR 2136 hr
Granite Gap, 18.3 mi. N. Rodeo on Hwy 80, Hidalgo Co., New Mexico
2074 Crotalus molossus ♀, 780+39 mm, 385 g, found mating
August 17 0.4 mi W. Portal on Cave Creek Rd., Cochise Co., Arizona
2075 Micruroides euryxanthus AOR 1930 hr
4.5 mi. E. Portal on Portal Rd., Cochise Co., Arizona
2076 Crotalus scutulatus AOR 1943 hr.
August 19 6.8 mi. E. Portal on Portal Rd., Cochise Co., Arizona
2077 Crotalus scutulatus AOR/DOR 1948 hr.
1.8 mi. N. Rodeo on Hwy 80, Hidalgo Co., New Mexico
2078 Crotalus molossus AOR 1954 hr., 209 g, 710+54 mm
15.0 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona
2079 Crotalus scutulatus DOR 2015 hr.
20.4 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona
2080 Crotalus scutulatus DOR 2023 hr.
2 mi E. Hwy 80 on Hwy 9, Hidalgo Co. New Mexico
SVL 530 cm, prey only saved
2081 Crotalus scutulatus DOR coll. B. Tomberlin, August 17, 1990
August 20 ≈4 mi E. Portal on Portal Rd., Cochise Co., Arizona
2082 Rhinocheilus lecontei AOR 2147 hr. 575+106 mm, 94 g
≈3 mi E. Portal on Portal Rd., Cochise Co., Arizona
2083 Crotalus scutulatus AOR 2156 hr
August 21 ≈2 mi. N. of Big Hatchet Mtns., Hidalgo Co., New Mexico
2084 Crotalus viridis AOR 0840 hr. ♂ 531+45 mm, 100 g

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August 21 0.8 mi W. Cave Creek Rd. on Rd. to Paradise, Cochise Co., Arizona
2085 Crotalus molossus AOR ~~1410~~ 1410 hr, 918+66 mm, 580 g
3.0 mi E. Portal on Portal Rd., Cochise Co., Arizona
2086 Crotalus scutulatus AOR 1924 hr
23.5 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona
2087 Scolopendra heros AOR ≈2045 hr
21.0 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona
2088 Sistrurus catenatus AOR 2056 hr. ♂ 320+37 mm, 28 g + 68 C. ~~uniparens~~ head-first
August 22 18.7 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona
2089 Rhinocheilus lecontei AOR 1944 hr
22.4 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona
2090 Crotalus scutulatus AOR 2020 hr.
August 23 Portal, Cochise Co., Arizona
2091 Tantilla nigriceps AOR coll. B. Tomberlin, August 21, 1990
≈1 mi. E. Portal on Portal Rd., Cochise Co., Arizona
2092 Crotalus atrox ad. ♂ released, ~~frag~~ feces saved, B. Tomberlin, August 1990
October 1 7 mi W. Animas on Hwy 9, Hidalgo Co. New Mexico
2093 bird regurgitated by Masticophis bilineatus (SV 90 cm), snake to UNM, coll. B. Tomberlin September 26, 1990
3 mi S. Pearce, on Hwy 666 ~~Cochise~~, Cochise Co., Arizona
2094 Lampropeltis getula DOR 0835 hr, coll. J. M. Mattler, Sept 30, 1990

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October 26 Ruhizha, Kabale Distr., Uganda 7750' el.
2096 Adolfus sp. ♀ 75+85 mm 9g
2097 adolfus sp. ♂ 83+136 mm 14g
2098 adolfus sp. fresh eggs, "site #1"
2099 Adolfus sp. old eggs, "site #1"
2100 Adolfus sp. fresh eggs, "site #2"
2101 Adolfus sp. old eggs, "site #2"
2102 Chameleo johnstoni ♀ 91+101 mm 19.5g
October 27 Ruhizha, Bwindi Forest Reserve, Kabale Distr., Uganda 7750' el.
2103 skink active 0950 hr
Mubwindi Swamp, Bwindi Forest Reserve, Kabale Distr., Uganda 7000' el.
2104 Chameleo sp. asleep on branch at ≈2230 hr 2.8g
October 28 ~~Ridge NE of~~ Mubwindi Swamp, Bwindi Forest Reserve, Kabale Distr., Uganda
2105 Hyperolius sp. on branch over trail after dark 7000' el.
October 29 Ridge NE of Mubwindi Swamp, Bwindi Forest Reserve, Kabale Distr., Uganda
2106 Bufo sp. active at 1220 hr ≈7400' el.
2107 Bufo sp. active at 1223 hr ≈7400' el.
October 30 Ruhizha, Bwindi Forest Reserve, Kabale Distr., Uganda 7750' el.
2108 adolfus sp. old eggs "site 3"
2109 Adolfus sp. old eggs "site 4"
2110 Adolfus sp. fresh eggs "site 4"
2111 Bufo sp. active beside rd. at 1628 hr
November 1 Kitahurira, NE edge of Bwindi Forest Reserve, Rukungiri Distr., Uganda
2112 Bitis nasicornis ♀ gr. 2.1 kg, 1000+90 mm, DOR 1320 hr.
November 2 Buhoma, Bwindi Forest Reserve, Rukungiri Distr., Uganda
2113 Rhampholeon head down on vertical leaf 30 cm above ground, 1 m from stream 2.5 g
2114 Hyperolius calling over stream at night

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November 3 Omubiyanja Swamp, Ibare Hills, Bwindi Forest Reserve, Rukungiri Dist., Uganda
2115 Phlyctimantis verrucosus
2116 Hyperolius
2117 Hyperolius
2118 ~~Hyperolius~~ Afrixalus
November 4 Crest WNW of Omubiyanja Swamp, Ibare Hills, Bwindi Forest Reserve, Rukungiri Dist., Uganda
2119 Bufo active on trail 1250 hr.
Buhoma, Bwindi Forest Reserve, Rukungiri Dist., Uganda
2120 Dipsadoboa coll. J. P. O'Brien 728+157 mm 55 g
2121 Rana cf. angolensis 31+g
2122 Dasypeltis atra coll. J. Vindum
November 5 Buhoma, Bwindi Forest Reserve, Rukungiri Dist., Uganda
2123 Bufo ♂ orange, found by Game Guard, AM
2124 Bufo ♂ orange, in wet grass at 1650 hr
2125 Leptopelis on shrub 2 m above trail, 2033 hr
2126 Rana cf. angolensis on fern in stream riffle, 2119 hr.
2127 Hyperolius "red" 60 cm above streambank on fern, 2127 hr
2128 Petropedetes } on ferns on boulders, in fast riffles,
2129 Petropedetes } 30-50 cm high, ≈ 2130 hr
2130 Rana cf. angolensis 50 cm above mid-riffle on big fern, 2138 hr
2131 Hyperolius "brown w/ stripes" on branch 3 m over stream, 2143 hr
2132 Dipsadoboa 476+95 mm 18.5 g
2133 Hyperolius "red" palped from HWG 2132, swallowed head-first, 2.3 g
November 7 Ishasha Gorge, Bwindi Forest Reserve, Rukungiri Dist., Uganda
2134 Chamaeleo ellioti asleep 3 m above ground on grass, 2045 hr, 7 g
2135 Atheris squamiger 3 m above swamp edge on branch - see field notes. 2115 hr. 6.1 g

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November 8		Ngoto Swamp, Bwindi Forest Reserve, Rukungiri Distr., Uganda
	2136	Hylarana albolabris 70 cm high on twig, 2204 hr 21.7g
November 9		Ngoto Swamp, Bwindi Forest Reserve, Rukungiri Distr., Uganda
	2137	Hyperolius asleep on leaf, ♀ gr. 2.1g 2 m above ground, edge of swamp 1040 hr.
November 11		Ruhigha, Bwindi Forest Reserve, Kabale Distr., Uganda
	2138	Chamaeleo johnstoni ♂ 3 m up on stem in sun, head down, 1615 hr 56g
November 12		Ruhigha, Bwindi Forest Reserve, Kabale Distr., Uganda
	2139	Adolfus active in roadside grass, 1223 hr., 5.6g
	2140	Chamaeleo johnstoni 56g, 1215 hr, facing up on stem ♀ 60 cm above ground in morning sun, coll. R.C. Drewes
	2141	Adolfus eggs, fresh, "site #5"
	2142	Adolfus eggs, old, "site #5"
	2143	Adolfus eggs, fresh, "site 6"
	2144	Adolfus eggs, old, "site 6"
November 15		Bugolobi Hill, Kampala, Kampala Distr., Uganda
	2145	Bufo cf. regularis active in suburban yard, 2130 hr.
December 23		Santa Rosa National Park, Guanacaste Prov., Costa Rica
	2146	~~Agkis~~ Agkistrodon bilineatus coll. park guards through A. Solórzano ~December 1, 1990

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March 26 La Selva Biological Station, Prov. Heredia, Costa Rica
Arrived here ≈ 1045 hr on the OTS car. Left Berkeley on the 23rd and made to San José in one day on Pan Am. Spent that night w/ Pedro Leon and his family in Escazu, then moved to the Hotel Presidente for Saturday and Sunday. Sunday at 0715 hr was awakened by the 6th floor where I stayed swaying and rocking, a 5.8 quake that lasted long enough I was up and in the doorway. Ten minutes later awakened again by a 6.9 quake, hard enough I was in jeans and down the stairs by the time it stopped. The Hotel Balmoral across the street had a crack running down it's height, and many store windows broke. The epicenter was near Puntarenas, and I heard that several buildings and houses collapsed in that area. When we arrived here Ronald Suarez showed us his pet Gallictis, ≈ 3 months old and very tame. Follows him, comes when called, and plays without biting hard tho it has well developed teeth. David Wallace, a writer from Berkeley, agrees that in life it seems wolverine-like, something I never perceived from the literature or museum skins. When exploring, the grison's head is to the ground, and its "snuffling" at cracks, door bottoms, etc. is easily heard from > 1 m. After lunch David and I located "Carol" the Bothrops asper w/ transmitter (151.315) in ≈ 20 minutes. She is ≈ 30-40 m N. of the CES (at the site on trail where originally caught). Snake is in what seems

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March 26 (continued) like an old gap, w/old fallow large branches, heaps of dried palm leaves, etc. Lots of vine tangles. I found her in a flat compact coil against a small (several cm ϕ) tree and its small buttresses. I was almost on top of her and her head was pointing at (xs.) me — this was ≈1345 hr, whereas when I returned at ≈1530 w/ Alejandro Solorzano she was facing W. Perhaps in the latter posture she would intercept something passing from either direction between the two trees, whereas the first time I approached she had perceived me and was waiting? Second time there was a slight head movement once or twice ~~as~~ as we (including Wolfgang Wüster — recent PhD on Naja under Roger Thorpe at Aberdeen) stood a few meters away. At ≈1700 hr we saw an adult Eira barbara near the Clarks' house, carrying a large fruit in its mouth and moving away into the forest edge. As I came back across the bridge at ≈1915 hr., Joanna Burger (Rutgers U.) showed me a Coendou rapidly coming down the upper bridge cable (it was so agile I at first thought it was Caluromys); the puercoespin then descended an adjacent sapling into riverbank vegetation. I could clearly see its prehensile tail in action, twisted (not curled - except maybe most distally) around limbs. ≈200 hr Alejandro Solorzano caught an adult ♀ Ungaliophis sclateri? (shelled eggs visible - ≥3), 12 g, 285+173 mm.

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March 26 (continued) This snake often has a broken tail, but this ♀'s is complete. When restrained she thrashes violently and wraps the tail around fingers, much like what I observed last year in Urotheca. Light rain from time to time in the evening, but when I checked the swamp ("Cantarana") found only a few cms of water in the center and heard only scattered frog calls (including ≥1 Agalychnis).

March 27 At ≈0930 we relocated the ♀ Bothrops asper < 9 m to the east, in a vine tangle but fully exposed, of the tree where we found her yesterday. She was in a compact but flat coil w/ head over a coil and facing ≈ WNW. After ≈1-2 m of looking at her we realized there was an adult ♂ B. asper a few cm away, also coiled flat w/ head up facing her! Where was he yesterday when three of us tramped all around the site! Did they just mate? First we gently hooked the male out into the can, then Alejandro pinned and bagged it. Snake promptly struck through the bag. Then without problem he and I hooked her into the can and closed it. About lunchtime Alejandro caught an adult Leptophis depressirostris in the lab clearing (no food in stomach) — it raced away from him, and thrashed and gaped when I handled it, but no perceivable odor (I have a cold). This afternoon we anesthesized the ♂ B. asper: 535 g, 1112 + 182 (TL 1294) mm. Then I surgically switched radios on the ♀ B. asper, from a Wildlife Materials

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♀: 1.65 Kg (spine shows, not thin), 1750+230 mm (spine missing) (TL 1.98m)

March 27 (continued) with freq. 151.315 MHz to a Telonics at 151.270 (originally .250). The previous unit seemed to have slipped external to the ribs and was easily visible as a lateral bulge, but the incision had healed perfectly and there was no evidence of any problem. I made a new incision at the posterior end, removed the old unit without difficulty, and put the new one in the same hole. I had difficulty getting under the ribs, but there was little bleeding. A visiting MD from Puerto Viejo closed the two incisions with dissolvable sutures — took the snake ≈ 2 hrs to regain movement, but by after dinner she seemed OK. After dinner David Wallace and I walked to ≈500 m on the CES and saw only a juvenile _Hyla rufitela_. Then through the Cavlasana Swamp — virtually no frog activity, but I found a small adult _Leptodeira septentrionalis_ lying along a small vine or limb (ϕ ≈3 cm) ≈0.5 m above the slope on its E side. Coming back in on the SOR, David spotted an echymyid rat in a standing hollow tree trunk. It had distinct (an erect-fright?) posteriorly spinose fur, a white belly, and a vaguely bicolored tail. Dorsum grayish brown, tending to lighter on the sides. I guess it was a 250 g rat. While we watched it began to eat from what looked like a small group of _Welfia_

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March 27 (continued) seeds (green & brown), using its forelimbs to manipulate (but not really sitting back on its hindlimbs).

March 28 ≈0800 we released the two Bothrops asper at their capture site. The male glided up ≈1.2 m into an adjacent vine tangle and disappeared. The ♀ glided to the N then slowed w/in 3 m to a rectilinear (?- slight curves) crawl and turned W in an arc. She froze at my approach and we left her. From ≈0910 hr to 1140 hr walked w/ Joanna Burger & her friend Mike ?, Wolfgang Wüster, & David Wallace - out CES, LOC to 1750 m, back via SSO, CCC, and SOR. At a small stream on the LOC we found a Rhinoclemmys (≈9 cm) in wet gravel beside it. Then a Lampropeltis triangulum's (adult) shed skin coming out of an Atta mound at ≈1600 m LOC. Wolfgang missed what might have been Rhadinaea decorata in litter beside the trail at ≈1000 m. The workmen gave me an adult Lepidophyma flavimaculatum they found in reconstructing the old lab. Joel Heinen (School of Natural Resources, Univ. Michigan) found three Ninia sebae? [Nothopsis rugosus] w/ stomach contents in his litter surveys: 1 Eleutherodactylus bransfordi, 1 Eleuth. sp., and 1 set of ≥6 cf. Eleuth eggs. Butch Brodie saw a Micrurus mipartitus? [nigrocinctus] at night with a Lepidophyma

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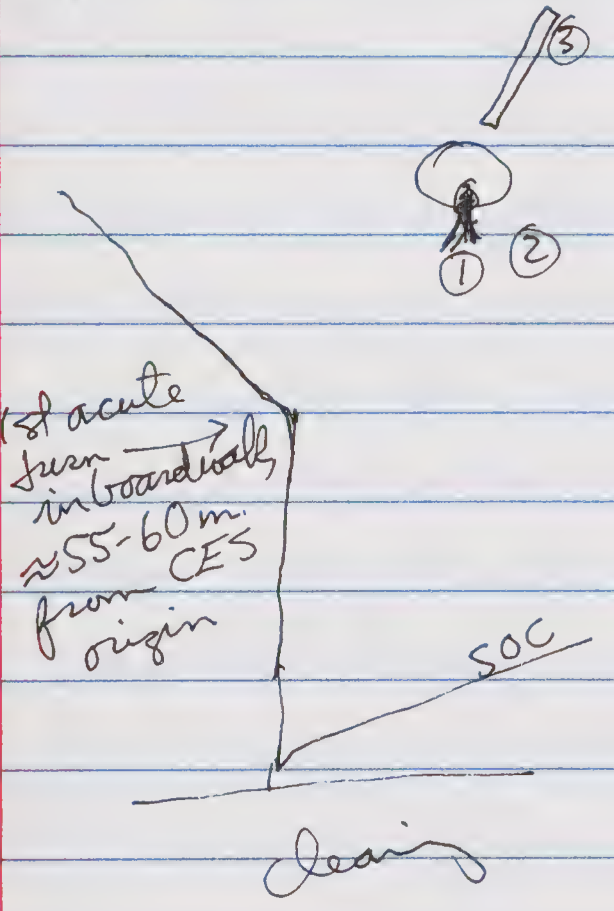
March 28 (continued) in its mouth. Nori Guzman from INDERENA in Colombia showed me the shed skin of an adult *Clelia clelia* she found today among buttresses of a tree. At ≈1330 hr Butch Brodie & I relocated the ♀ *Bothrops asper* coiled near a large fallen log, ≈10 m farther N or NNW of original capture site. The scene is roughly:



1 = tree where 1st seen
2 = vine tangle
3 = fallen log

Then David, Butch and I spent a frustrating hour because I briefly caught the signal at ≈151.395 of a *Boa constrictor* David Hardy implanted last August. Then we floated the Puerto Viejo from Rafael's House to the Old River Station, ~~twice~~ nice, but saw no animals. David King saw a *Lachesis muta* today, coiled beside the connector between the Sendero Jaguar and the LOC. After dinner there was a *Potos flavus* eating

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March 28 (continued) fruit in the *Cecropia* tree on the S. side of the bridge, from which I observed the sloth fight in 1987. Forgot to mention that at ≈ 1500 hr a tourist spotted the bright yellow throat of a *Pseustes poecilonotus* protruding from the eves of the Old River Station. It was ≈1.2 m TL, no food in stomach, and slightly inflated the throat only under repeated threats. Otherwise just rapid crawling.

March 29 This morning I handled the *Enulius* after it had been out of the air conditioned lab >12 hrs, thus presumably at normal temperatures. This snake responds to being seized by rapid locomotion and squirming, and repeatedly wraps up to three loops of its long tail around my fingers. While the tail is thus applied, its spine tip makes "poking" movements against the fingers. When seized firmly by the tail it spun violently and broke off ≈ 1/3, which I dropped and timed. There was no obvious blood on the snake or tail piece. It flipped rapidly (>1/second) and symmetrically in a sinuous repeating pattern like I observed last year for *Urotheca euryzona*. It moved a few cm at first, but not thereafter in space, and changed side up at least 4 times (displaying white or black). By 1'30" the tail was slowing and tending to coil in a knot. At 3'10" it stops in a tight spiral and moves slowly when pinched. At 5'00" coils if uncoiled but otherwise immobile. At 6'18" still moves slightly. At 16'30" and 21'00" the tail still moves slowly if pinched, and contracts to a knot like coil.

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March 29 (continued) At 22'00" I could see slight movement when the tail was pinched, but it did not contract to a coil and I ceased observations (snake released). I left La Selva ≈0900 h and rode to San José with Joanna Burger and her husband Michael.

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June 2 Pisgah Lava Flow, San Bernardino Co., California
Road hunted our old two mile stretch on National Trails Hwy, from the railroad crossing west to the Lavic Mine Rd from ≈20-2200 hrs. 3/4 moon, hot day, conditions seemed good - but we saw no snakes, only a juvenile Callisaurus draconoides (which ran in the dark to escape us) and an adult ♂ Coleonyx variegatus.

June 3 Granite Mtns. Natural Reserve, San Bernardino Co., California
arrived here ≈1300 hr to visit Phillipe Cohen and Cindy Stead, the reserve managers. They have frozen for me an adult Lichanura trivirgata. The rosy boa was found by Felicia Smith (grad student, U.C. Riverside) dead w/ a head injury, coiled on top a boulder at Cove Spring here in the Granites. We surmise a squirrel might have killed it. Snake was fresh when found, ≈ May 26-27 of this last month. The boa was frozen and preserved in approximately (at least) the posture in which it was discovered.

June 4 ≈0800 Cindy showed me a small adult (≈1.2 m) Masticophis flagellum in open sun, just outside their house and near a boulder and a small tree (this is in Granite Cove). She says she sees coachwhips around the house w/ some frequency, perhaps attracted by water. This snake had precisely the anterior black head and neck elevated and perpendicular to the sun, as if basking. It seemed to see

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June 4 (continued) me (as evidenced by pupil movements), perched on a boulder w/ binoculars ≈ 5 m away. After ≈ 5 min. of immobility the head was lowered and the snake crawled slowly (several meters/minute) w/ head periodically directed to the side or down at which time the tongue was protruded. Seemed to be prowling. From ≈ 0900-1600 Claudia Luke and I drove north into southern Inyo Co. and back to Granite Cove. We drove north on Kelbaker, turning NE on Eakin Mine Rd., which took us over a spectacular black lava field w/ several large red cinder cones. Besides many Callisaurus draconoides and Cnemidophorus tigris, we saw a black Crotaphytus bicinctores basking on a rock, which escaped; a large gravid Gambelia w/ red marks, also on a rock in full sun; and a Phrynosoma platyrhinos - this on Cima Dome, ≈ 0.3 m above ground in sun on the rim of a fallen Joshua tree trunk (photos). Drove north on the road from Cima (we came out on it from a dirt 1-lane ranch road), across I-15 and north around the east edge and over the Kingston range, finally through [? Tecopah] and south on Hwy 127 to Baker and back to the Granites.

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June 18 La Selva Biological Station, Heredia Province, Costa Rica
Arrived here ≈0945 hr via the highway through Braulio Carrillo National Park. Managed to catch my plane out of San Francisco yesterday AM despite an airport van driver who was still lost in the Oakland hills 45 min before flight time. Met at the airport by Alejandro Solorzano, Sergio Miranda (co-owners of the Serpentario in San José), and John Cadle (ANSP, here to collect for a month), and spent the night at Hotel Galiba. Billie and David Hardy from Tucson had arrived at La Selva on the 15th to work together for two weeks, and Wendy Roberts (one of my graduate students) had arrived here in late May. Everyone is saying that snakes have been scarce lately. As I walked to the River Station for the first time after lunch, at 1356 hr I saw a neonate Micrurus nigrocinctus (186+20 mm, 1.8g) crawling rapidly on the sidewalk. Snake appeared at first glance brightly ringed. When I seized it with a plastic bag the snake thrashed wildly (no overt separate tail display) and bit by swinging its head to the side and holding the plastic bag in its jaws. Dave Hardy and I went to a tree where he located the radio signal at 151.270 MHZ, a transmitter I implanted in a ≈2 m Bothrops asper. Snake is obviously somewhere under the tree (a Pentaclethra?) and there are two or three possible burrow entrances. Dave checked again after dark, but as yet we've

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June 18 (continued) not seen the snake. At ≈1910 hr an Earthwatch volunteer took to the steps just on the way to the River Station from the lab clearing, where an adult *Bothrops* (see June 20) *asper* (≈1.5 m) was frozen crawling off the sidewalk. Took me several tries to get it hooked into the garbage can, but the snake's repeated response was to crawl away from me. ≈2030 hr Dave & Billie Hardy caught an adult *Micrurus nigrocinctus* (♀, 785 + 90 mm, 79 g, possible eggs palped) active at trail's edge, CES 220 m. About the same time Billie saw an ocelot, *Felis pardalis*, at CES 50. From ≈2130-2215 the Hardy's & Wendy and I walked on the inundated (≈ 8") boardwalk in the Sendero Cantarana. Saw & heard several *Hyla loquax* and *H. ebraccata*, a *Synbranchus* (coming out from under water log), and an adult *Leptodeira septentrionalis*. The snake was crawling slowly, tongue flicking, w/ its head on the slender branches ≈ 2.5 m above the water surface. Tail was not used prehensiley.

June 19 Billie Hardy told me there was a brief shower ≈0100 hr, but today was generally sunny. Dave, Wendy, & I walked out SOR, Holdridge, Sendero Suampo and the CCL between ≈0800-1000 hrs. We found fresh *Panthera onca* tracks traveling west for ≈50-75 m on the SUA, ending at ≈SUA 600 – a stretch that parallels the stream. On a good clear set of tracks I measured the pad as 83 mm and

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June 19 (continued) the tips of the splayed toes at 120 mm. Then, perhaps 400 m further west at the junction of CC & SUA we found fresh Felis concolor tracks heading east, with a pad of 55 mm and parallel toes of 82 mm. Identification of the respective tracks seems unambiguous based on shape & size, fide L. Emmons new guide to rainforest mammals. Before lunch we also walked through the "research swamp" at ≈ CES 200, where Wendy is studying frogs, and out to CES 550, but saw no snakes. Floated the river this afternoon and saw one protruding rock and two horizontal tree trunks (one fallen at river's edge, one growing out from banks) w/ evidence of or piles of Lutra longicaudus feces. ≈ 2200 hr I checked the Cantarana Swamp and saw a ≥ 50 cm Synbranchus protruding out from under a log - when I seized the eel it instantly flipped a meter away and was gone.

June 20 From ≈ 0800 - 1100 hr Dave, Billie, and I walked out the CES, LOC, and back in to the station by 550 and CCL. At 550 800 we found a very old cat scat — or at least a pile of bone chips, teeth, and a little fur in mid-trail. Also cf. ♀ Norops lemurinus on a tree trunk. From ≈ ~~[illegible]~~ 2000 - 2200 hr. we walked out SOR # SHO to the successional plots, then through them and back in to the Sendero Cantarana via SSE and SOR. At 1945 hr Billie spotted

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June 20 (continued) an adult Micrurus nigrocinctus (♂, 555+96mm, 51.6g) crawling off the trail at ≈ SOR 200 m. When I pinned the snake w/ a boot, it thrashed, coiled and waved the tail, and bit rapidly and repeatedly. At 2040 hr. Billie spotted a smaller adult M. nigrocinctus in the successional plots, but I was unable to pin it before the snake rapidly crawled out of sight in dense vegetation. In both cases the bright tricolored pattern was obvious and I did not experience flicker-fusion of the bands. At 2119 hr Dave found an adult Leptodeira septentrionalis crawling at ≈ 3 m up in the large open tree ≈ 1/3 into the Cantarana Swamp from the W. end, S. of the boardwalk. Snake was crawling slowly along a limb (≈ same diameter as snake), tongue flicking w/ head against limb. At 2125 I found a gravid ♀ L. septentrionalis < 1 m above water near the W. end of the swamp, ascending a ≈ 15 cm diameter tree on which there was an arboreal tarantula at ≈ 3 m. The snake was crawling in part on vines that ascended the trunk. When handled she thrashed and smelled very foul.

June 21 Dave and Billie found a Rhadinaea decorata ≈ 0600 hr on the path between the lab clearing and the Old River Station (4.8g, 212+136 mm). At 0700 hr two workmen showed me a Bothrops asper they found in the grassy lab clearing, under an object (22 g

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June 21 (continued) 352 + 28 + ? mm), a ♀ w/ tip of her tail clearly missing. I palped a mouse from her w/ a 90mm tail and body smaller than adult lab mouse (based on hindquarters); judging from small hindlegs and feet, long tail, and general appearance, it is cf. Oryzomys fulvescens as pictured in Timm et al. (1989). Dave, Wendy Roberts, Mary? (student in OTS agroecology course) walked CCC, SSO, and back to the station on CES & LOC between 0830 and 1130 hr. We saw a few anoles and Eleutherodactylus and the shed skin of an adult Boa constrictor at LOC 450 m. From ≈2100-2200 hr I led ≈10 students from the OTS agroecology course out to SOR 600 m and back through the Sendero Cantarana. We saw a Dasypus novemcinctus rooting in leaf litter ≈2100 hr beside the sidewalk to the River Station. At ≈2200 hr there were two Leptodeira septentrionalis adults in the large open tree where we've seen one the past few night.

June 22 Rained during the night and some scattered showers during the day. This afternoon Dave, Billie, and I dug up the skeleton of a large viper ≈1 m from the base of a tree where we get the strongest signal from 151.270 MHZ, the radio I implanted in ♀ Bothrops asper in March. Several ribs are broken, suggesting predation or scavenging of the snake.

June 23 Heavy but brief shower during breakfast. Photographed animals all morning. At 1930 hr we found a Ninia sebae (adult, not processed) that thrashed when

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June 23 (continued) seized. At 2120 hr, 150 CES, Dave spotted an *Imantodes cenchoa* (11.1g, 575+191 mm) in leaves beside the trail. At 2155 hr. I saw an adult *Leptodeira septentrionalis* at >3 m above water in a tree in the Sendero Cantarana swamp, crawling slowly, moving the head laterally on the limb surface and tongue flicking.

June 24 This afternoon Dave and Billie Hardy and I walked out the CES, SAT, and Sendero Ribereño to the trolly car across the Río Sarapiquí, then back via SJV and SOC. At 1415 hr near the beginning of Sendero Atajo we startled a juvenile ♀ *Bothrops asper* in the trail – she had an aberrant striped pattern, which Dave photographed, and seemed thin.

June 25 Today I lead three orientation walks for the O.T.S. tropical biology course – the first around the loop trail (CCC & CCL) and each of the others out SOR to ≈ Holdridge 600 m. Saw no snakes.

June 26 Dave and Billie and I walked out SOR & Holdridge, then over the Sendero El Suampo and back via Camino Central and CCL. There was a hard rain during and after breakfast, so the strong cat urine smell at SUA 190 m had to be fresh at 1020 hr. At 1030 hr, SUA 350 m, I found a very fresh, large cat scat, shortly thereafter we found *Panthera onca* tracks in mud between the trail and stream ~500 m on SUA. There were two sizes of tracks:

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June 26 (continued) pad 53 mm, toes 105 mm; and pad 69 mm, toes 115 mm — perhaps a slightly smaller cat than we recorded here a few days ago. at ≈2115 hr, ≈CES 130 m, Anna Graybeal (U.C. Berkeley student in the tropical biology course) and Wendy Roberts found an Imantodes cenchoa next to the boardwalk on the ground (11.5 g, 565 + 240 mm).

June 27 With Billie and David Hardy and Anna Graybeal, walked out SOR, SHO, SUA, Camino Central to 1350 m, and back via CCL. Caught a juvenile Bufo haematiticus in litter beside SHO at 75 m. Saw a few, seemingly fresh Panthera onca tracks at ≈SUA 550 m, ≈ same size as seen there this past week. After dark, Michael and Patricia Fogden caught two Sibon longifrenis along the sidewalk going to the Old River Station (14 g, 400 + 150 mm; 6.2 g, 311 + 144 mm).

June 28 After dinner Dave and Billie Hardy and I walked out the Sendero Sura, through the Arboretum. At SURA ≈150 m Billie spotted a large ♂ Micrurus nigrocinctus crawling slowly around a small tree at trailside at 2008 hr. During the next 6 minutes the snake crawled slowly, covering ≈1 meter, poking its head under leaves and tongue flicking. At 2014 hr I moved one foot lightly and the coral snake crawled quickly (but not rapidly) into a small ~~tree~~ hole at the base of the tree. Only thing we saw in the Arboretum was an adult Eleutherodactylus fitzingeri in midtrail.

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June 28 (continued) At 2134 hr I saw a small adult Leptodeira septentrionalis in the Cantarana Swamp, ≥3 m above water in a small Pentaclethra (wrong ID?) on the north side of the boardwalk, soon after it goes out over the water. The snake was ≈ same size as one seen on the "Tarantula tree" (see June 20), a sighting not far from this one (same snake?). This snake was stretched along a downward sloping limb ≈ its own diameter, w/ head dropped down a few cm and poking into a mass of suspended moss – the snake seemed to be struggling, pulling and pushing its head through the moss, and since no jaw movements or prey items was seen I surmised that perhaps the animal was shedding. At 2140 hr Dave Hardy showed me an adult Sibon longifrenis and a giant Leptodeira septentrionalis in a larger Pentaclethra tree south (SE?) of the boardwalk, ≈ 3 m above the swamp water surface. The S. longifrenis was crawling slowly on a branch ≈ its own diameter, w/ >6 lateral bends of its body, and I was impressed w/ the easy visibility (by flashlight from several meters distance) of its distinct ventrolateral red spots – although overall the snake was not easy to see. The very large L. septentrionalis was crawling slowly along a limb, tongue flicking. At 2150 hr Dave showed me another adult L. septentrionalis in a tall snag in the NE portion of the swamp, 7-8 meters above the water – I think

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June 28 (continued) the same tree in which he and I saw one in a previous year. At 2328 hr I passed back through the Cantarrana Swamp on my way to the River Station and spotted the same giant Leptodeira septentrionalis, a meter or two from where it was seen earlier this evening, eating eggs of Agalychnis saltator. The snake was draped over a ≈ vertical limb ≥ 2 X its own diameter, holding the trunk by a series of fairly tight kinks in the body that alternating over to opposite sides of the limb. Every few seconds it pushed its head perpendicularly and laterally into the dense moss that surrounded the limb; initially w/ a strike-like jab, then the neck quivered or moved laterally more slowly. Between such bouts the head was withdrawn a few cm and I could see unilateral jaw movements, but never an actual item (I did not have binoculars and was observing from a distance of 4-5 m). I surmise that this snake (and the other one earlier this evening were eating frog eggs, because this species has been seen eating eggs of A. callidryas and Wendy Roberts has seen numerous clutches of A. saltator laid ("plastered into") mossy limbs and tree ~~trunks~~ in the Cantarrana Swamp.

June 29 Dave and Billie Hardy and I walked out the SOR and CCL to ≈ 700 m. At 0857 hr. we found a beautiful little gray Bothrops nasutus (   ) in leaves beside the boardwalk,

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June 29, (continued) but only because it moved as Dave walked by. At 0909 hr at CCL 105 meters Dave saw a gravid ♀ *Rhadinaea decorata* ( ) crawling rapidly in leaf litter; he grabbed the snake just as it disappeared into a (known?) hole. Dave and Billie left on the car after lunch. At 2355 hr in the Cantarrana Swamp I saw a small adult *Leptodeira septentrionalis* in the largest small *Pentaclethra*, south of the boardwalk, and the same (I think) giant *Leptodeira septentrionalis* in the same place as last night. It was draped over the same limb, repeatedly pushing its head into a ≈ 20 cm vertical patch of moss just below where it was last night, and evidently – judging from same repeated behavior as last night – eating *Agalychnis saltator* eggs. I took two photos of it w/ a 200 mm lense, 1.4 X teleconverter, and flash.

June 30 From ≈ 0830-1030 hr I walked out SOR, SHO, through SUA and back via CCL w/ Khristen Ramstadt (Yale School of Forestry). After dark went to the swamp at ≈ CES 200 m, where Wendy Roberts is studying the breeding biology of leaf-laying frogs. We saw numerous frogs of various species, and one *Leptodeira septentrionalis* – laid out (2010 hr) on a horizontal branch (≈ 2 meters above water), with head extended (≈ 15 cm) in space and immobile. ≈ 2130-2200 hr Wendy and I went to the Cantarrana Swamp in a downpour w/ scattered lighting. Saw a small adult *Le. septentrionalis* ≈ 4 m above the water in the same tree as 2134 hr on June 28. Saw the "giant" *L. septentrionalis* 1-2 meters from its

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June 30 (continued) site of earlier evenings, crawling slowly and tongue-flicking. We saw brilliant yellow-green eyeshine of two olingos (Bassaricyon gabbi) in a palm tree, which because of a misperception of how far away the tree was I thought might be a puma! Que tonto, no?

July 1 With Wendy Roberts, walked out SOR and SSE to ≈1000m, then over to SHO and out the CCL for lunch on the bridge. Saw only Ateles, twice, 2 each time.

July 2 Drove to San José with Patricia Fogden after breakfast, to work on getting my collecting permit and do some shopping. Alejandro Solorzano gave me a photograph of an adult Micrurus nigrocinctus that regurgitated an eel (swallowed head-first), cf. Synbranchus.

July 3 Caught the 0900 hr bus back to La Selva from San José. Pretty good rain this afternoon, but only very light drizzle at night. I went through the Cantarana Swamp at ≈2115 hr and 2330 hr and saw no frogs, but because of the moonlight I could walk the boardwalks with no light. Michael Fogden walked on the CES in forest (thus darker) and got 2 Imantodes inornatus and one I. cenchoa. He saw the latter suspended only by a few cm's of its tail vertically in space, sweeping over leaves and tongue-flicking.

July 4 From ≈0800-1000 hrs, Wendy and I walked out SOR, CCC, to SSO 900m to check a former nest sight of Agalychnis calcarifer on a

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July 4, (continued) fallen tree. Thereafter, I made a quick trip to CES 300 m, but saw no snakes on either walk. At least three local men, including Edwin Paniagua, have told me that snakes are in their "cuevas" now because of rain — but I've been here at rainier times (same months) and seen many more snakes. After dinner Wendy and I were in the Cerbanana Swamp from ≈1940 - 2050 hr, in a slight drizzle with low frog activity. At 1944 hr we spotted a Leptodeira septentrionalis ≈4 m above the boardwalk in the first good sized tree on the N side as one enters from the west — same size snake and general part of tree as seen here on earlier nights. The snake was near the treetop lying on branches and foliage, hanging its head and neck down through green leaves and tongue-flicking. At ≈2015 hr we found a large L. septentrionalis ≈2 m above the water on a horizontal limb, crawling slowly and tongue-flicking, and several meters from but in same tree as first. Then we spotted a smaller (same as earlier?) snake ≈2 m below where the first one was, ~~tried~~ descending to a clutch of Agalychnis saltator eggs in pendulous mass. Snake tongue-flicked around the mass, then repeatedly pushed its head in and ate eggs for ≥5 minutes; started up and away leaving some eggs, and crawled rapidly

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July 4 (continued) up and out of reach. ≈15 minutes later we saw that same snake (?) at ≈ same height but 2-3 m away, again tongue-flicking moss clumps. Perhaps it abandoned the earlier eggs – which clearly were not all consumed – because of our lights. I took many telephoto (280 mm lens w/ flash, f5.6) pictures.

July 5 At 2015 h Wendy and I found an <u>Imantodes</u> <u>inornatus</u> (24 g, ♂ 625 + 285 mm) directly over the beginning of sidewalk at the east end of the Cantarana Swamp, ≈4.5 m up. The snake was crawling slowly and tongue-flicking, horizontally over slender branches and leaves, often w/ a substantial portion of its anterior half extending straight forward. The swamp was exceptionally bright because of a more or less full moon, and we couldn't locate any <u>Leptodeira</u> in the usual trees in more open parts. At 2030 h we spotted a large <u>Nothopsis</u> <u>rugosus</u> crawling toward us, next to the sidewalk down from the lab clearing – surprising fast and extended, with a few shallow body bends. I grabbed, had it, the snake squirmed loose, and Wendy grabbed the animal – a surprisingly different response from the others of this species I've seen here, which were always slow.

July 6 ≈0830-0930 h walked through Arboretum, ending over on the far side above the Sura, where Manuel Santana and I radiotracked <u>Chironius</u> in the early '80's. I heard rain, looked across the stream, and could see a heavy shower over

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July 6 (continued) there, less than 100 meters distant, yet none on me! From ≈ 1930-2130 hr Wendy Roberts and I walked through the Cantarana Swamp, out to CCC ≈ 700 m, and back through the Cantarana. Saw only an adult _Leptodeira septentrionalis_ ≈ 2 m above water in the Cantarana, north of the boardwalk and west of the "14" signpost, in a leafy shrub. The snake was in a loose coil with head extended, horizontal, and scarcely moving — seemed sensitive to the light, a very brightly moonlit night. We also found an exceptionally cryptic caterpillar on a vertical, dirty old strand of palm frond (photographs).

July 7 Field notes on the first _Bufo melanochloris_ from La Selva, caught by Michael Kaspari (University of Arizona) on June 17, 1990, at Sendero Ribereño 190 m, in litter of large leaves ≈ 1 m off trail, 1040 hrs., partly cloudy and warm. Michael studies ant ecology, and identified the following in two fecal pellets from the little toad: 5 _Cyphomyrmex cornuta_, 5 _Solenopsis geminata_, 1 curculionid weevil, 1 _Cyphomyrmex minuta_, 7 _Trachymyrmex cornetzi_, and 3 _Pheidole simsoni_ — all ants except the weevil. Based on Michael's sampling, the toad was "selecting the larger ants available." Today I preserved an adult ♀ _Corallus annulatus_ (1310 + 253 mm, 510 g) and a _Sciurus granatensis_ that had been palped from it (365 g). Squirrel showed

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July 7 (continued) evidence of digestion on the face, so obviously was recently ingested. Predator and prey had been frozen for me by Orlando Vargas in April. Wendy and I searched the Cantarana Swamp by bright moonlight from ≈ 2040 – 2130 hr. As we walked out of the lab at 2035 hr she spotted a large Sibon nebulata (23 g, 523 + 185 mm) crawling beside the cement walk. The only snake we saw in the Cantarana was at the east edge, ≈ 3 m south of the boardwalk and ≈ 2 m above water – an adult Leptodeira septentrionalis stretched out on a small limb and not crawling. The snake seemed asleep with its body and head strangely twisted so that their ventral aspects faced us (photographs). The snake jerked and shot forward a few cm when Wendy tossed a stick near it.

July 8 Went in the CES 200 m swamp with Wendy to help run her frog transect, then checked the Cantarana Swamp. At 2044 hr saw a Leptodeira septentrionalis adult, just past the large tree on the west end, south side of boardwalk. The snake was crawling up, then down, a vertical sapling less than its diameter, gripping with alternate lateral shallow loops and the head and neck crooked as if holding the shoot. At 2047 hr it descended (partly fell a few cm) into leafy foliage ≈ 1 m below where I first saw it and ≈ 1 m above the swamp water, then disappeared. Bright moonlit night. →

July 8 (continued) I have a live *Bothrops nasutus* to return alive to Berkeley, brought in by a local conservation group a couple of weeks ago from Chilamate. The snake looked so heavy I thought it might be gravid, but today appeared a substantial mass of feces (saved). Today I held an adult *Dendrophidion vinitor* (HWG 2032) by the tail, and it twisted free by breaking a piece (38g, 531+291 mm originally). The autotomized piece (2g, 181 mm) wiggled sinuously (same form of motion as I observed in *Urotheca* and *Enulius*) but slowly, and slowed within a few seconds to faint movements. At 1:06 minutes post autotomy the tail stopped moving, and at 2:29 minutes it wouldn't move when pinched. Michael Fogden told me he has observed this species to break the tail when handled.

July 10 Yesterday after lunch Wendy and I went on the OTS car to San José for dinner and a movie. Returned this morning with Alejandro Solorzano, and from 1500-1700 hr he and I walked CCC to CC, SUA, and back by SHO and ~~SRT~~ SOR. Saw no cat tracks and caught only *Sphenomorphus cherriei*. See also July 13.

July 11 Wendy Roberts and I walked CES, LOC, SSO, CCL, and back via SOR - saw only *Cebus*. A quote from Wendy: "There's nothing like a small woman chugging up a hill to keep the guys grinding ahead."

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July 12 Wendy and I checked the Cantarana Swamp, but it was dry and quiet – saw only one frog, an adult Agalychnis callidryas. At 2051 hr on open wet ground, west edge of the swamp, I caught a bright red Clelia clelia (74g, 590 + 162, ♀?) crawling slowly and stretched out, head up. When seized, the snake thrashed and expelled noticeable quantities of smelly liquid from the cloaca. At first sight of the solid red snake I still hesitated, asking myself – is that a coral? At 2129 hr, ≈ 100 m on SURA a small (not neonate) Bothrops nasutus crawled on the boardwalk right behind Wendy, and was obviously and competently sidewinding on bare soil. At 2133 hr, 110 m on SURA, Wendy spotted a brightly marked Nothopsis rugosus crawling slowly and stretched out – response to handling was semi-rigid immobility, but when placed on substrate and poked it crawled. David Clark told us that young Clelia here are called "vibora de sangre", regarded as venomous and killed.

July 13 Packed to leave after lunch. Forgot to record that at 2005 hr and 2152 hr, on July 10, we saw an adult Leptodeira septentrionalis ≈ 1 meter above water at the east end of the Cantarana Swamp, ≈ 3 m south of the boardwalk. Snake was immobile both times

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July 13 (continued) and stretched horizontal on a limb less than its diameter. At 2209 hr we spotted an adult Urotheca euryzona crawling slowly off the trail from the lab clearing to the river station. It thrashed and circled my fingers several times w/ its complete tail (30.4 g, 408+290 mm). At ≈1030 hr Tina Brown called me to see a subadult (≈1.3 m total length) Lachesis muta at CCC 610 m. The snake was coiled and awake, ≈10 m west of the trail, on open ground among palms. When I approached for photos it raised the head a few cm, almost vertically, oriented to me, and tongue-flicked. At ≈1130 hr. several people (including Sean O'Brien, U. West Virginia, who took photos) watched what was evidently an adult Pseustes poecilonotus eat two eggs of a little tinamou, Crypturellus soui. They had stopped to see the snake, described as olive w/ a yellow belly, then noticed the "bright pink, almost round, size of chicken" eggs in a slight depression in the leaf litter beside the lab trail sidewalk. The snake slowly crawled up and ate the eggs. Arrived in San José to learned my planned trip to Playas del Coco to look for sea snakes is off — lack of car, lack of boatman, etc. So, I wait here to leave early on the 15th. Dinner w/ John Cadle and George Forman.

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August 8 Portal, Cochise Co., Arizona
Arrived here ≈2100 hr, after flying from New Orleans to Tucson and driving here with Claudia Luke. We just returned from the SSAR/HL meetings, Claudia having flown there, whereas I drove from Berkeley to Tucson last week. Driving down here we saw a fresh dead Crotalus scutulatus on Hwy 666 between I 10 and Douglas, a live small adult C. atrox after dark on Hwy 80 between Douglas and Rodeo, and a live neonate C. atrox on the Portal road.

August 9 Late morning I went up the road to Paradise to look for our two radiotelemetered male C. molossus: #1 (149.612 Mhz) was first caught in the canyon bottom in 1988; #3 (148.545 mhz) was found w/ a female at a Neotoma nest last year. I climbed almost to the rimrocks, never getting more than a weak signal from #1 and concluded he might be over the ridge. Followed #3's signal into a shallow arroyo system a few hundred meters west of the parking turnout where both had originally been found and north of the road but couldn't localize him - didn't have headphones w/ me. Went to the Portal Post Office to check on my New Mexico collecting permit, and as I came out the woman renting the house next door (Mrs. Wasser) asked if anyone could help her w/ a rattler in her yard! Went over and hooked an adult ♀ C. molossus out of her rock wall - it was ≈ 60 cm above ground,

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August 9 (continued) flattened on the round stones w/ head facing out, as if basking. Straight-sided, broken off rattle string. Dinner at the Portal store and then left to road hunt ≈1830 h. Clear, a little cool, and felt moist – some clouds and lightening to the SW, and a large yellow moon later in the evening. 22.4 mi SW State Line Rd. on Hwy 80 at 1925 h we scooted a ≈ yearling AOR Pituophis melanoleucus off the road. Kept 2 Sistrurus catenatus, a freshly hit C. atrox, and a DOR Rhinocheilus lecontei, plus an AOR Bufo alvarius. The Sistrurus were snappy: initially stretched out and immobile, slightly flattened. When touched they crawled rapidly, then jerked into striking coils w/ heads cocked up, rattling, struck, then crawled rapidly again.

August 10 Met George Roderick (former UCB grad student, now U. Maryland) and went to the Kreutz Ranch in the San Bernardino Valley. At the jct. of Rucker Canyon Rd. and U.S. Hwy 80 saw Eumeces obsoletus, Sceloporus undulatus, and Cnemidophorus uniparens under rocks. Saw a C. uniparens enter a Dipodomys spectabilis mound when I approached, good way for it to get caught by a Sistrurus. At Mulberry Draw we walked around the terrace above the arroyo itself, just SW of the U.S. 80 bridge, where I found an adult Eumeces obsoletus under a board at 1110 hrs. At ≈1500 h George and Jim Ott (a postdoc w/ him) went w/ me to search for

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August 10 (continued) C. molossus ♂ #3. Finally located him under the edge of a large live agave at 1630 hr. Snake was starting to crawl out the east side of the plant, in shade — perhaps to bask in late afternoon? It withdrew almost out of sight under the agave leaves, w/ head protruding and tail visible, but never rattled. We went to the SWRS ≈ 1730, and just after dinner at 1830 hr, was called to catch an adult C. molossus ♀, 891+54 mm, 498 g, 4 segments (incomplete) crawling across a trail just across the footbridge NB: missing several posterior infralabials over Cave Creek behind the Director's house — it rattled as I lifted it on a hook to the bag, but didn't strike. Claudia and I gave talks after dinner, and Dick Zweifel told me of finding a Tantilla melanocephala in Venezuela eating a centipede. Jay Cole told me that he and Dick have field notes on a pair of C. molossus mating at the station many years ago. Ken Helms (Arizona St. U.) studies ants at night and told me once last summer and again last week he saw what looked like Sistrurus in a grassland site just N. of the Portal Rd. in New Mexico, immediately E. of its jct. w/ State Line Rd. He had sketched the spearpoint and light-dark head markings of this year's snake, as well as the round, "silver-edged" spots — and said after seeing my slide of a San Bernardino Valley animal he's sure the snake(s) were massasaugas. Says there is little mesquite at the site, a ranch owned by

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August 10 (continued) Ned Hall of Rodeo, New Mexico. Both snakes he saw were abroad after dark.

August 11 Morning overcast. I hiked across the entire canyon face, north of Paradise Rd., searching for Crotalus molossus #1 and re-learning Rule #2 of Stupid Things not to Do when radiotracking: never leave a comfortable substrate for an uncomfortable substrate until you have carefully tri-angulated the signal! (Rule #1 is Dial in the Right Frequency). After ≈1½ hr I gave up near the head of an arroyo at the east end of the curved ridge, because – initially thinking I was close – I'd left pack, water, etc. in the truck and was overheating. At 1140 hr I located #3 under the same agave plant as yesterday, except now his head and body were partially exposed. Between 1630–1800 hr we searched grassland just north of Portal Rd., between U.S. 80 and the State Line in Hidalgo Co., New Mexico. First went to Rodeo for permission from Ned Hall, a taciturn rancher in his 70's or 80's. Mrs. Hall invited me in and was friendly; Ned Hall was shirtless, eating a bowl of soup, allowed that "they study everything these days," and said to kill all the rattlers I want to! The site is open grassland w/ scattered brush and yucca, and numerous mounds of Dipodomys spectabilis – a plausible Sistrurus site. Saw only Sceloporus undulatus and a large ♀ Phrynosoma cornutum

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August 11 (continued) — she startled at my feet, ran erratically, then squirted my hand and chest with blood four times from the left eye as I handled her. Blood was ejected w/ a distinct jerk backward and to the side of the head, thus aiming the stream at my hand – what would have been the eyes and/or mouth of a more natural predator. We road hunted the massasauga site for two passes back and forth between Rucker Canyon Rd. and Bernardino – got an AOR *Crotalus atrox* 23.5 mi SW State Line Rd. at 2002 hr (♂, 936 + 87 mm, 630 g – after I palped 88 g of partially digested mammal from his stomach) and a large *C. scutulatus* AOR ~~[illegible]~~ at 2007 hr, 24.4 mi SW State Line Rd. Hardy's had arrived when we returned, and Dave had caught three small *Crotalus atrox* on Hwy 9, to be released after processing: 6.1 mi E. 80 on Hwy 9, 2042 hr, ♀ 460 + 29 mm, 56 g, 3 rattle segments including button; 8.4 mi E. Hwy 80 on Hwy 9, 2052 hr, ♂ 614 + 48 mm, 143 g, 6 segments including button; and same data as previous snake which it (this ♀) was following, ♀, 717 + 45 g, ~~[illegible]~~ 248 g, 9 segments (incomplete), disgorged rodent that had been eaten head-first (11.3 + ? g).

August 12 Cool, overcast, periodic light showers. Ground and vegetation were wet and rich w/ smells as Dave Hardy and I hiked over the canyon slopes to find our two radiotagged *Crotalus molossus*.

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August 12 (continued) At ≈1200 hr we found #1 in a tight coil against a small prickly pear, ≈1.5 m from a crevice among small boulders. Snake seemed asleep — jerked alert as I approached for photographs, then slowly crawled up slope over open ground and into the crevice. It moved directly to the crevice, never turning toward me or rattling. The site is high on a slope below rimrock cliffs >500 m above the road. At 1252 hr we located #3 stretched out and pointing into the base of a blue gray large agave like yesterday, but <100 m from the previous plant and closer to the road. The plants are in thick low acacia approachable by scattered open areas, perhaps game trails. As we stepped close, he glided a few inches to the side and coiled under dense brush w/out ever rattling, his head pointed at the agave's base. Tucked in among the basal agave leaves, head pointing out, was a brightly colored ♀ — 785 + 48 mm, 308 g! I waited ≈20 minutes while Dave drove to his house for a grab stick and net bag, during which neither rattler moved. Light drizzle. When Dave returned I held one leaf apart and gently pulled her out — never rattled. This afternoon we surgically implanted her w/ AVM transmitter 38916, 151.074 MHZ, 10 g, w/out problems.

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August 12 (Continued) We also processed all accumulated rattlers, using vapor anesthetic, at the rate of ≃ 4/hour.

August 13 Scattered rain and cool all day, as I drove to Tuscon – took Claudia to the airport for her return to Berkeley and work, then picked up radio and did laundry at the Hardys' house there. Drove back via Hwy 666 from 1700–2130 hr in scattered showers. Lots of toads on the road, but only snake a Lampropeltis getulus crawling across U.S. 80 near the State Line. Dave Hardy had an exciting day: he located Crotalus molossus #3 a short distance (few meters) down slope from yesterday's agave coiled under low acacia, then heard a rattle click once or twice and found another male (898 + 71 mm, 400g, 9 segments including button, 30 dorsal body blotches). Then he backed off a culvert and had to have a tow truck from Road Forks lift him out.

August 14 This morning started sunny and partly cloudy. We found C. molossus #3 a few meters from yesterday's spot, coiled among acacias in a tight coil, tail concealed, head and neck in an S-coil w/head horizontal and sticking out over outer coil – seemingly an ambush posture. Released ♀#5 in front, and she crawled ≃1 meter then coiled under dense brush ≃1m from male #3. Neither rattled. This was ≃0844 hr. At 0934 hr we found male #1 out west of yesterday's crevice and ≃1.5m from it.

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August 14 (continued) He was in a loose coil anteriorly w/ tail & post. trailing toward the crevice, as if he had just crawled out. As I moved close to try for a photo he jerked out toward the crevice then froze, and we w/drew. After lunch we implanted yesterday's male C. molossus #6, a young (tapered rattle) male, with an AVM w/frequency 151.115 mhz. This afternoon I visited Barney Tomberlin and Tony Snell, now living <1 mile east of Portal. They gave me 2 Gyalopion canum (both popped and squirted while squirming in hand), 1 Tantilla nigriceps, 1 T. yaquia, and a huge Diadophis punctatus - the latter caught by a cat across from the Portal Store. David Hardy and I road hunted from ≈1830-2130 hr, first to ≈9 mi E. of Hwy 80 on Hwy 9 in New Mexico to release 3 small Crotalus atrox, then SW on Hwy 80 to Bernardino to make one pass over the Sistrurus site. Heavy showers at time, and cool. We saw only one snake, an adult Crotalus scutulatus.

August 15 At 0810 this morning Alicia from New Mexico Game and Fish called to confirm that John Hubbard says I cannot collect on Hwy 9 - no explanation. This morning is cool and overcast, and we had more rain during the night. Supposedly this (in my experience) peculiar weather results from some storm in the Gulf of California. At 1100 hr we located ♀ C. molossus #5 under a low (< 0.5 m) acacia in a tight coil, tail hidden, head

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August 15 (continued) and neck in S-coil in center. She was ≈2 m N of a juniper and ≈10 m E. of the agave plant by which we released her yesterday. Only reaction to my close approach for photographs was a slight head jerk. We released ♂ #6 at the agave where he was found day before yesterday. At 1120 hr we found ♂ #3 under a 1 m tall acacia on the edge of an arroyo, ≤100 m ~~E~~ ESE of the agave where Dave last located him and the other two blacktails. He elicited a brief burst or two of rattles as I stepped w/in a meter — seemed to be stretched out and crawling, and as I looked down he crawled ≈1 m and froze. All this during a light sprinkle on a cool morning. We had a low tire, and while inflating it I checked ♂ #5 ≈1145 hr and found he had coiled where last seen. After lunch we went to Rodeo for gas and toured the Chiricahua Gallery. Scattered showers into the afternoon and evening. Dave and I road hunted to Bernardino, making two passes over the massasauga site — saw only an AOR Thamnophis marcianus on Hwy 80 and numerous toads.

August 16 Early morning sunny, partly cloudy. We found a Pituophis ♂ melanoleucus 1442 (TL) 200 mm, 860 g at 0952 hr, 2.2 mi W. of Portal Rd on Paradise Rd. At 1008 hr we radiolocated Crotalus molossus ♂ #3 in same spot as yesterday, coiled in some sun — he uncoiled w/out rattling at our approach and retreated to same place as yesterday. At 1016 hr

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August 16 (continued) ♀ C. molossus #5 rattle for an instant at my feet, just as the radio indicated I was very close. She is coiled under a low acacia ≥30 m E of yesterday's site, next to a clean spot of ground and on the W edge of an arroyo. At 1036 hr we found ♂ C. molossus #6 on the E side of the next arroyo E. of the one #5 is above, thus ≥100 m E. of yesterday's site. He's in an open coil in dappled sun, under a nearly leafless 1 m high acacia. No reaction as we walked softly around him. Saw a Eutamias sp. on a barren ledge across the arroyo from him. At 1126 hr we found C. molossus ♂ #1 stretch out on the slope in open, ≥100 m downslope and slightly SE of yesterday — he froze as we approached then crawled under a 1 m acacia, gave one brief rattle click, and coiled. At ≈1200 hr we met Jurgen Schumacher, Elliot Jacobsen, and Tom Moise at the Portal Garbage dump by chance, and learned they had just photographed combat and copulation among 3 C. molossus at Granite Gap, so with Jurgen as guide we went arrived there ≈1230 hr.

Granite Gap, 18.3 mi N. Rodeo, Hidalgo Co., New Mexico

Tom Moise (Cal Poly Pomona), Elliott R. Jacobson, and Jürgen Schumacher (the latter two Box J-126, College of Veterinary Medicine, University of Florida, Gainesville, Florida 32610) arrived here ≈1030 hr, at a site on the south side of the pass, west side of

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August 16 (continued) Hwy 80, ≈200 m from the road. The site is level w/ scattered reddish granite boulders, but there are high granite outcrops and slides all around. Jürgen first noticed two male *Crotalus molossus* w/ their heads held high together, and called the others over. There were three adult rattlers: a large yellow and red-brown ♂ (10 54 + 67 mm, 770 g, 11 segments [incomplete] mating w/ a ♀ (780 + 39 mm, 385 g, 7 segments [incomplete]), and a smaller darker ♂ (said to be definitely larger than the ♀ and ≈3/4 the "size" of the larger ♂). They watched the snakes for 30-40 minutes during which copulation was uninterrupted and the ♀ remained quiescent under a small bush at the edge of a large *Neotoma* nest (composed mainly of cholla pads). During the period of observation the ♂♂ had 3-4 bouts of raising and twining their anteriors and pressing each others heads and/or necks; the smaller ♂ repeatedly crawled around the copulating pair and appeared to try to dislodge the large ♂ by nudging w/ body loops. The rattler ♂♂ seemed aware of the three men at times, but reacted only by elevated approach w/ the head; they never rattled. at one point the ♂ disappeared into the *Neotoma* nest, and shortly thereafter the same [seemingly] ♂ emerged. The combat bout ended when the smaller ♂ crawled up over a ledge

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August 16 (continued) then turned and disappeared into a hole between a boulder and the top of the rat nest. When they left the pair were still copulating. Dave Hardy, Jürgen, and I arrived ≈1230 hr and found the pair still in copulo. We could not locate the smaller ♂ during a search of an area roughly ≈10-15 m square around the woodrat nest. The ♀ lay in an open coil in shade under the edge of the nest and a small plant (possibly a juniper). The big male was loosely coiled up on the edge of the nest w/ his posterior hanging down to the ♀. Both were immobile. When I approached w/in less than a meter for photos, one or the other rattled briefly and both moved slightly. The male turned toward me but did not crawl. When we arrived they were in dappled sun, thanks to a position on the west side of a ~~boulder~~ boulder and cleft, such that there was slight shade. By the time they separated at 1312 hr and we collected them, it was noticeably hotter, brighter, and they might have done so to escape increasing temperature. I crawled to w/in <0.5 m and Dave held the plant's branches w/ tongs — so our presence might have caused them to separate prematurely, but it is noteworthy that they largely ignored all the other attention. I watched "de-tumescence" through my 105 mm camera lense; it occurred w/in 60-90 seconds

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August 16 (continued) once initiated, and as the ♀ crawled or pulled her tail away the vent was open and ≈100-150 mm string of greenish cream fluid in a string streamed from her cloaca. Neither snake rattled as I gently lifted them w/ tongs into a bag. At 1542 hr I photographed her still swollen but closed cloacal area. Late this afternoon Dave and I visited K. M. Murphy, the local in Portal Game Warden. Last year he saw an adult Crotalus molossus protruding from a Neotoma nest and just starting to swallow a woodrat pup — squirming and w/ eyes still closed. Kim tapped the snake w/ a stick and it released the pup, which was still alive several dozen minutes later — thus Kim concluded the rat pup was being swallowed w/out envenomation. Dave and I road hunted to Bernardino, making three passes over the section from Rucker Canyon Rd to Bernardino on Hwy 80. We picked up 2 C scutulatus, a big dead Pituophis, and — at the same stop — a Micruroides euryxanthus (I think Dave hit it) and a live, squirming, cloacal-popping (fluid spews for several feet!) Gyalopion canum.

August 17 Another sunny, hot day! At ≈0900 hr we found Crotalus molossus ♂ #3 ≈30 m SSE of his previous sight, in dappled sun, in a tight coil, w/ head over outer coil and neck in an "S." At 0910 hr,

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August 17 (continued) C. molossus ♀ #5 is in the same exact spot as yesterday, in a tight coil, head in center and tilted up—she is hard to see under a low acacia. At 0920hr, C. molossus ♂ #6 is in the same site as yesterday, in shade, seemingly frozen while uncoiling under the big surface root of the ≈1 m high, leafing-out acacia that conceals him. At 0955hr, we spotted C. molossus ♂ #1 crawling at ≈ 1 total length/16 seconds, seemingly undisturbed. He glides along w/ only slight lateral displacement, occasionally pointing the head laterally and down, then disappears over a rock shelf into a prickly pear clump. He's at ≈ the same elevation as yesterday, but >100 m west of that site and as if going down across the base of the rim rocks. At 1017hr we resighted him, crawling as before; By 1019hr he was 4–5 meters from that 1017hr point, crawling at 1 total length / 10 seconds, moving his head slightly from side to side and tongue-flicking. At 1605hr we returned to find C. molossus #1 out in late afternoon sun crawling, ≈ 25 m west of this morning at same ≈ elevation. He crawled into the shade of a fallen dead ocotillo as I approached and froze, but didn't rattle. At ≈1640hr we found C. molossus ♂ #3 in a tight coil in the crotch of a walnut (?) tree,

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August 17 (continued) ≈ 20 cm above ground at the south side of the road, west side of the arroyo that crosses the road at the picnic area turnout. His head was horizontal on the edge of outer coil of body, and he made no response to our approach. We had dinner (Billie Hardy's chile rilleros—hot!) w/ Alden Hayes, a former National Park Service archaeologist who has been in this area for decades. He told us that the pullout we use to park where our blacktails are is called Duffener Camp; that the ridge that runs ≈ W–E and N of Silver Creek, upon which the rattlers hibernate, is called Limestone Mountain, from East Turkey Creek to its terminus near Portal—and the specific ridge was called Grand Royal Ridge for a while because of a mine up there; and that there's an adobe ruin near there called Albert Fink for the guy who lived in it in the 1880's and 1890's. Dave and I road hunted to Bernardino and made two passes over the massasauga site—saw a Micruroides between their house and Portal, a neonate C. scutulatus, and a yearling Pituophis (not saved—AOR at 2022 hr, 22.9 mi SW State Line Rd. on U.S. 80). At 2159 hr we drove by and could see C. molossus ♂ #3 in the same tree crotch.

August 18 At 0847 hr, C. molossus ♂ #3 has crossed the

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August 18 (continued) road since last night — now under the first large juniper north of the road, in the same arroyo, on its west bank — stretched out and frozen. At 0858 hr we located C. molossus ♂ #6 ≈ 2-3 meters S of yesterday's site, coiled w/ tail hidden — he is still just off and west of the little N-S mining road. At 0908 hr, we found C. molossus ♀ #5 in a tight coil, same place as yesterday. At 0939 hr, we found C. molossus ♂ #1 mating w/ an unmarked ♀, ≈ 30-40 m west of yesterday's side, slightly higher on the slope and perhaps 10-15 meters below some rim rocks. The pair was in partial shade, stretched up slope and parallel to the edge of a ≈ 20-30 cm deep slab ≥ 2 m long, w/ dense vegetation at its upper end. When we arrived their posteriors were in partial sun. ♀ was stretched out, head and neck angled to the E., the male parallel and against her ≈ ½ his body length, head and neck extended straight past her angle for 30 cm, then also turned E. At 0949 hr she moved her posterior slightly and he turned back w/ chin movements — short, jerky, lateral, against his body. Occasionally her tail rippled or contracted; at 1020 hr she moved upslope a few cm — possibly in response to us, but I think more likely to gain more shade. His tail jerked and he turned

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August 18 (continued)

back along his body and froze. At 1023 hr he again jerked his head several times (≈2-3/sec) tongue-flicked, touched her back w/ his chin, and froze. At 1032 hr Tony Snell called to us from on the road that he'd caught an HOR Salvadora. At 1033 hr we left and the pair of C. molossus were still in copulo. ≈1130 hr we drove to Granite Gap and released the big ♂ C. molossus caught August 16; very hot and sunny and w/in minutes he disappeared into the Neotoma nest. Went to Rodeo for gas and to buy things at the gallery. At 1545 hr. we found C. molossus ♂ #1 still copulating w/ the ♀ (she has 5 segments plus a button, and of course is much smaller). They are 3-4 m north of this mornings site, closer to the rimrock. He is stretched under a low bush pointing E; she is stretched out in the shade of a crevice of an angled rock slab that opens uphill. Their tails are crossed just at the edge of the slab. They remained that way until we left at 1605 hr. At 1620 hr., we found C. molossus ♂ #3 at the base of an acacia, in a loose coil facing a big Neotoma nest (mainly sticks); tail visible, head out on coil and horizontal. The nest is up under a rocky ledge on the E. side of the arroyo

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August 18 (continued) he was in this AM, ≈30m further up (N) the gully. Snake looks to be hunting, and is at the S. edge of the nest — such that if the rat entered or left along the ledge the rattler's head is in range. Went to a party at the AMNH's Southwestern Research Station in the evening. Richard G. Zweifel told me that last year a man in Paradise shot two *Crotalus molossus* together in the crotch of a tree — sexes unknown.

August 19 at 0900 hr we found *C. molossus* #~~5~~6 in the center of the arroyo just east of the mining road, several dozen meters E. of last sighting. He was crawling slowly and emitted a slight rattle click as we approached. at 0910 hr *C. molossus* #5 was in dappled sun at the edge of a small bush, coiled w/ tail hidden, ≈8m SW of yesterday's site. at 0933 hr *C. molossus* #3 was under a fallen dead juniper limb, in a flat coil w/ head ~~in the middle~~ on the outer coil but down in and tail not visible — I suspected a food bulge, but wasn't convinced. Saw him shake off a small flying insect with his head. Site is ≈70m East of the mining road and 20 meters north of the main road. at 1025 hr. *C. molossus* #1 is ≈90 m west of the copulation site, east of a large arroyo that heads near the west end of a reddish reef escarpment (c 15m) below which he's been traveling. Snake was difficult to find, tucked up under the base of a prickly pear in shade, tail

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August 19 (continued) and rattle exposed and head facing out to south. No sign of a female. Cactus patch is ≈ 1 X 2 meters. Barney Tomberlin and I road hunted once over the Sisturus site between Rucker Canyon Rd. and Bernardino, before which we caught an emaciated ♂ Crotalus molossus just north of Rodeo! Just out of Rodeo coming back, intending to go to Granite Gap, I notice someone tail gating me and was careful not to exceed 55 mph. When the car didn't pass us or turn off to Portal I slowed to 40 mph, and pulled over as soon as the flashing red lights came on. I flicked on the cab light and kept hands in view, but Barney bounded out the right side w/ big black flashlight in hand and promptly got in a shouting match w/ the two Hidalgo Co. deputy sheriffs. Told them he worked for Game and Fish and they derisorily referred to "fish squeezers" and "critter cops". The bigger deputy was yelling at Barney (now back in the truck, as ordered) through my window, and at one point I wondered if we were both about to be handcuffed. They'd run a stolen car check on my truck and didn't seem especially suspicious of me. After 5 minutes or so they let us go and we returned to Portal.

August 20 at 0915 hr. C. molossus #5 is ≈ 7 m WSW of last flagged site, ≈ 1.5 m WSW of yesterday's, under the base of a dying standing yucca. Can't see well –

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August 20 (continued)

She moved her head but didn't rattle as I approached. At 0930 hr. C. molossus #6 is ≈150 m E or ENE up boulder slope from the mining road, thus >100 m from yesterday and ≈75 m from the first corner telephone pole on the rock pile nearest the main road. He was uncoiling in a gravel patch between an acacia and an agave as I approached. At 0956 hr C. molossus #3 is ≈ 2 m S (toward road) from yesterday's fallen limb, frozen stretched out. Signal seemed to move as I approached. At 1020 hr C molossus #1 is ≈150 m to the NE of the corner telephone pole, thus >100 m west of yesterday and ≈ 4 m uphill from a white hankie tied to an acacia (from last year?). Snake was frozen as if moving into a coil, head tilted up on an anterior body loop, tail extended behind. At 1620 hr #1 is in a tight flat coil w/ tail hidden, neck and head in an S-coil facing bare area next to rock from underneath a low plant. ≈12 m west of this AM in line w/ the corner telephone pole. I almost stepped on him — had stepped on either side, then up on a boulder from which I saw him. At 1640 hr. C. molossus #3 is on the S. side of the road, ≈ 20 m downslope and S. of yesterday's site on the N. side of the road. Snake is in an open flat compact coil w/ head facing a downed limb. At ≈ 1730 hr

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August 20 (continued) picked up Diane Wagner (former UCB undergrad, now PhD student at Princeton) at SWRS and drove to Douglas for dinner at the Gadsden Hotel. Spectacular sunset over purple-striped mountains to the east, ahead of lush green plains of San Bernardino Valley. Coming back we saw a Vulpes macrotis, several Crotalus, and a Rhinocheilus lecontei.

August 21 Big Hatchet Mountains, Hidalgo Co., New Mexico
Barney Tomberlin and I left Portal at 0710 hr and arrived here ≈ 0905 hr. We drove through Animas to Hachita, then south on Hwy 81 for 15.3 mi; we turned left on a dirt road just south of Hatchet Gap (Little Hatchet Mtns. to the right), drove 0.2 mi, turned left through a corral and drove 4.6 mi ≈ east through a valley on the north side of the Big Hatchets — a lush creosote scrub habitat w/ lots of grass. At 0840 hr, ≈ ½ way down that road, we caught a ♂ Crotalus viridis flattened (basking?) in the dirt road — it put on a terrific show: striking, whirling S-coil, rattling, elevated & down-tilted head, then switched to a compact coil w/ head tucked down into it. Passed a road to a windmill on the right and took the next right — a two-track that wound 2.5 mi up to the mouth of a steep canyon that ends before enormous sheer cliffs. We searched opposite sides of the canyon walls, especially talus slides, for almost two hours but saw only

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August 21 (continued) *Urosaurus ornatus*. Our directions came from a BLM agent who brought Barney a beautiful lime green *Crotalus lepidus* from this particular canyon. We could see thick stands of pine and oaks higher up. Driving to and from the Hatchets I was impressed by large expanses of nice grassland, seemingly suitable habitat for *Sistrurus catenatus* - there are even lots of *Dipodomys spectabilis* mounds. ~~At 1410 hr as I drove up Si~~

Portal, Cochise Co., Arizona

At 1410 hr as I drove up Silver Creek Canyon, 0.8 mi W. of Cave Creek Rd. I saw an adult *Crotalus molossus* stretched out, as if just having crawled onto the dirt road from the S. As I came out of the truck it exploded into sustained rattling, w/ head highly elevated - reminiscent of *C. durissus*. Met Wade Sherbrooke and three student volunteers at the Duffener turnout. At 1435 hr, *C. molossus* #3 rattled, stretched out by the garbage can (underneath which shelters a very fat *Spermophilus variegatus*), then pulled back into an S-coil and froze. At 1455 hr. we found *C. molossus* #1 under the south edge of a big juniper ≈40-50 m ESE of the corner telephone pole, in a tight flat coil under grass; tail not visible, no response.

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August 21 (continued) at 1515 hr. C. molossus #3 has crossed the road and is just north of it, near the base of a large bush and difficult to see. As Wade circled to spot him, a small Sylvilagus audubonii jumped toward the snake, squeaked, and bounded out of sight. At 15:17 the snake yawned; at 15:18 moved head slightly; at 15:19 a volley of tongue-flicks; at 15:20 a "big" yawn and we can see he's in a flat coil. I think he struck (because of the yawns) and missed (because he didn't trail) the rabbit. At 15:37 hr we found C. molossus #5 under a low plant ≈ 1 m from the dying yucca where she was yesterday, in a flat coil w/ head up and horizontal on the outer coil, tail and rattle hidden. At 1545 hr. C. molossus #3 is gone. At 1554 hr. we find C. molossus #6 under a low bush next to Spanish bayonette and ≈ 5 m upslope from yesterday and ≈ 50 m west of the corner telephone pole. It is in a tight coil w/ tail and rattle hidden, head at an up tilt on the inside of an outer coil. Went road hunting w/ Wade Sherbrooke, including three passes over the Rucker Canyon - Bernardino massasauga site. We saw Crotalus scutulatus, Pituophis melanoleucus (one immature, 20.1 mi SW State Line Rd., Wade took it), and an adult ♂ Sistrurus catenatus from

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August 21 (continued) which I palped a partially digested Cnemidophorus velox. Wade brought me an adult C. molossus from SWRS to examine: ♂, empty stomach, 872 + 63 mm, 402g, 6 segments (parallel and incomplete. Forgot to mention that yesterday as I drove up to the snake ~~site~~ site in the AM there was a big pile of reddish feces w/apple chunks in it, courtesy of Ursus americanus, on the paved road between the Hardys' house and dirt turnoff to Paradise – then another, also mid-road, ≈ ½ mile toward Paradise which I photographed. This prompted Diane and I to ask: Why did the bear shit in the road? Cause he couldn't make it to the other side!

August 22 Joined up with Alden Hayes and two of his brothers to see the Abert Fink site – it's an adobe ruin ≈100 m or less upstream from the Dufferin pullout, on the first terrace – just one corner left now, but you can still make out the adobe brick and mortar lines. At 0850h we found C. molossus #3 in a compact coil in a prickly pear on the NE bank of the side branch of Silver Creek that flows under the road at the Dufferin place; his tail was invisible, head up on an outer coil. At 0910h as I approached #3 for photos he raised into a somewhat elevated S-coil (still in among the Opuntia pads), rattled for ≈2 secs.,

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August 22 (continued) and froze. At 0926 hr I found C. molossus #1 ≈ 3 m west of yesterday, in the open by a prickly pear – perhaps startled by me but no rattle. At 0931 hr C. molossus #3 is back in an identical coil in the cactus as when first encountered. At this point I heard and saw two acorn woodpeckers "mobbing" the big Spermophilus variegatus. The squirrel was ≈ 8 m up, near the top, of a large oak tree near (few meters) his garbage can retreat. Green acorns litter the ground. Squirrel continues to eat acorns (I can see him pluck them w/ mouth and sometimes hold w/ fore paws) while the birds vocalize and flutter from as little as 20 cm away. Twice the squirrel moved several meters along large limbs and the birds flew after him, landed on branches, and resumed the harassment. At 0938 hr the squirrel descended rapidly from the tree, followed for a few meters in flight by the woodpeckers. ~~At 10~~ Were they defending the acorns? At 1000 hr I located C. molossus #5 on a ledge under an overhang, on the south edge of a woodrat nest (many sticks), on the west side of the large arroyo just below and west of the mining road. She is in an anterior coil, head up on outer coil (? – see photos) w/ tail and rattle clearly visible and trailed to the north over the nest. At

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August 22 (continued) 1020 hr I found C. molossus #6 on a slope a few meters up from yesterday, due east, and ≈50 m WNW of the corner telephone pole. He was in a tight coil, looking west, w/ tail invisible; no reaction to my approach. At 1031 hr I spotted C. molossus #3 stretched out and frozen ≈3 m toward the culvert from the cactus (which is just NW of where the path crosses the gully) — his head was hidden from me under a small, fallen sprig of juniper, but by moving along the opposite bank I could see it was perpendicular to the stream channel (currently dry) and slightly raised off the ground. I watched from across the gully, ≈10 m distant, w/ binoculars. At 1051 hr he swung his head a few cm to his right, tongue-flicked twice and froze w/ his head beside a small rock — good place to ambush something in the gully. At 1101 hr I left, but re-checked at 1105 hr and he remained as before. At 1245 hr. I found #3 under a large shrub during a light rain, on the SW (opposite) side of the gully and next to the path from the pullout area down to it — perhaps 25 meters from the cactus site of this morning. His head was down in the flat coils, tail hidden. At 1730 hr (accompanied by Richard and Nadia Seigel and Bill Duellmschmidt, I found C. molossus #3 at the same spot

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August 22 (continued) under the tree (shrub), frozen w/ head extended out of coil as if starting to crawl. Road hunted w/ them to Bernardino, back and forth to Rucker Canyon Rd. - saw 1 DOR Pituophis, 2 DOR C. scutulatus, an AOR C. atrox, and caught 1 small C. scutulatus and 1 Rhinocheilus lecontei. One other car was definitely road hunting at the massasauga site, the first since I arrived this time: a pickup (cf. Datsun), gold w/ white camper shell, Arizona licence 7475 NS.

August 23 Packed up and cleaned up the house prior to leaving for Berkeley. At 0920hr an adult (>1m, ♂?) Crotalus atrox was crossing Cave Creek Rd. just south of the big turn coming out of Portal, in full sun. At 1150hr C. molossus #3 is ≈10m WSW of yesterday under a bush, almost hidden in grass and stretched out, just N. of the north bank of the main ~~Silver~~ Creek drainage and S. of Duffener pullout. At 1205hr C. molossus #5 is just E. of the mining road and due W. of the corner telephone pole, ≈6 m down the slope from that road and on a line between yesterday's site (woodrat nest) and the corner pole; in a flat compact coil w/ head in center in an S-coil. As I left at 1455hr, ≈1 mi E. of Portal on Portal Rd., an adult Masticophis bilineatus started out on the road from scrub

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August 23 (continued) froze briefly as my truck approached, then doubled back in a hairpin and disappeared — I was impressed by the visibility of copper color on the snake. Drove to Tucson.

August 24 Drove to Mojave, California.

August 25 Drove to Berkeley.

September 29 Portal, Cochise Co., Arizona

Arrived here ≈1400 hr, after a flight from Berkeley to Tucson, where I rented a car for the drive down. Dave and Billie Hardy arrived yesterday and located all 5 of our radiotagged *Crotalus molossus*. Weather is warm, sunny, partly cloudy. At 1515 hr we located ♀ #5, stretched out in a narrow little gully through low dense scrub, a few meters W of where I encountered ♂ #3 on August 10. As yesterday when Dave found her, this snake contains a huge, recently ingested meal and seemingly cannot crawl. I feel sure it is a cottontail, because the lump is too large for a woodrat, wrong microhabitat for a rock squirrel, and Dave noticed protruding bumps yesterday — I think the rabbits hind legs and/or heels. She moved head and neck once as I approached for photographs, but never rattled. At 1535 hr. we found ♂ #6 coiled in sun on the W. side of a boulder, on a stick nest of *Neotoma* and w/ an obvious big food bulge. After several minutes of our maneuvering for photos, he crawled

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September 29 (continued) into a hole in under the boulder, never rattling. At 1610hr ♀ #5 was as earlier. At 1630hr we found ♂ #1 as yesterday, in a putative hunting coil ≈2m from a Neotoma nest in an Opuntia clump. The rattler is in a flat, tight coil, tail invisible, head and neck in a level S-coil w/ snout out over outer coil. Its snout points at the base of a shrub ≈15cm away, and I think a runway passes to the visible nest entrance between the snake and the shrub base. At 1652hr Dave spotted an adult Salvadora grahamiae frozen beside a dead upright sotol (?); as I approached it dashed around the plant and froze, where I grabbed it w/ a clamp stick. At 1658hr I spooked a Sylvilagus. At 1626hr we had found ♂ #3 w/ head just out from under a boulder, 26m uphill from where Dave spotted him crawling. We also found ♂ #7 coiled under a bush — details on all sightings are on separate data sheets. After dinner I talked to Diane Wagner at SWRS, former UCB student and now working on a Ph.D at Princeton. She saw a Sistrurus catenatus 200m W of Peach Orchard Rd, 0.5 mi N. of Portal Rd., 3.3 mi E. of Portal, in acacia scrub w/ some grass. The snake was flattened on the ground at dusk, and crawled into a bush when disturbed.

September 30 Rain began ≈0500hr and continued as a steady

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September 30 (continued) drizzle until ≈1300hr. This PM we checked ♀#5, ♂#3, and ♂#1 between ≈1300-1500hr; #3 was exposed ≈2 m from yesterday's site, the other two as yesterday, and full details on separate data sheets. Air temp ≈ 14°C. and overcast, tho by ≈2000hr I could see some open sky. Barney Tomberlin told me there has been plenty of snakes on Portal road in late afternoons lately. TV weather reports indicate a big storm system moving up from the Sea of Cortez.

October 1 Rain began ≈ 0300 hr and continued w/ short sporadic letups all morning. Louis Pope (USFS) told me that there's an inch of snow on top of Mt. Graham, and Eric Hayes remarked this rain "might continue till the snows start!" Rain slowed to light drizzle after noon, which continued til dusk. At 1345hr I found Crotalus molossus ♀ #5 ≈0.5m SW of yesterday's site, up under a bush but still extended – food lump seems smaller and snake look's fine. At 1400hr I localized ♂ #6 out of sight under the same boulder where he was last seen on the 29th. At 1420hr ♂ #1 was in the same spot as yesterday, but facing E (ie., he had turned ≈90° to his right), and facing down the possible trail. Could not see tail, no response from snake. Sun is now breaking through clouds to the west. At 1430hr ♂ #7 was barely visible under a small (>1 m ϕ) boulder beside where

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October 1 (continued) he was coiled on the 29th. At 1450 hr I found ♂ #3 ≈ 2 m uphill from where I stumbled onto him yesterday, under a small bush beside an open patch. He was in a tight coil, tail invisible, head in — took photos. From ≈ 1600–1730 hr I cruised the Portal Rd. and checked out the site where Diane Wagner saw the Sistrurus. Today Kevin Conargh told me of finding a seemingly neonate (fide B. Tomberlin) Crotalus molossus on Sept. 29th, on the road in South Fork Canyon. Barney Tomberlin gave me a passerine regurgitated by a Masticophis bilineatus he caught at a lizard study site in New Mexico. Wade Sherbrooke gave me a neonate DOR Lampropeltis getula a student at SWRS found with a mammal hanging out of it. Made one trip from Portal to Hwy 80 and back w/ Lee Fitzgerald (UNM) and Charlie Painter (NMGF), both visiting Barney Tomberlin — saw only several juvenile Scaphiopus multiplicata. Sky partly cloudy, lots of stars. 61°F at noon on the Hardy's porch.

October 2 55°F on the Hardy's porch at 0620 hr, partly cloudy with lots of open sky. At 017hr I found ♀ Crotalus molossus #5 w/in a few cm of yesterday's site. She is up under a bush, her head hairpinned for ≈ 10 cm along her neck and facing down her outstretched body to the east — already catching a little sun sifted through the shrub branches. I touched her gently w/ the

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October 2 (continued) reception antenna and she moved her head calmly ≈5 cm toward me but didn't rattle. Each day I've thought the lump has shrunk – it's still large but distinctly smaller and less lump-like than on the 29th when I first saw her. At 0729 hr I found C. molossus ♂ #1 coiled tightly in the same place as yesterday, except he has turned ≈ half way back toward the shrub base; some splashes of sun are already on him. At 0754 hr, after ≈10 minutes of close searching, I finally spotted ♂ #3 <0.5 m from yesterday's site – in a tight coil w/ ~~head~~ tail hidden and head in the center and slightly up tilted – this might have reflected postural adjustment to my tromping all around him! Left Portal in the rental car ≈0900 hr and Tucson by plane via Phoenix to Oakland and Berkeley.

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October 23 Nairobi National Park, Nairobi, Kenya
Robert C. Drewes, James O'Brien, Jens Vindum (all three from the California Academy of Sciences), and I arrived in Nairobi at 0630 hr, having left San Francisco on the afternoon of the 21st. We had an 8 hr. layover yesterday in London, and made a hasty visit to the British Museum (Natural History) to check snakes from Uganda. We are on an exploratory expedition sponsored by U.S. Aid for International Development, handled through CARE Uganda, to collect amphibians and reptiles in the Bwindi (Impenetrable) Forest Reserve of southwestern Uganda. After checking into the Hotel Boulevard we visited the Nairobi Snake Park — a rather run down place with exhibits of several species of African snakes and ironically (because they're usually hard to keep alive in captivity) a Crotalus adamanteus; also an African slender-snouted crocodile (Crocodylus cataphractus) which I photographed. Walking into the Snake Park, down a narrow stone walk bordered by a rail and a rock wall, we squeezed past a class of 20-30 Kenyan school kids (≈6-8 years old?), who suddenly began enthusiastically squeezing our hands and greeting us with smiles and laughter. Their response passed w/ us down the line, reminding me of "The Wave" at baseball and football games in the States. Everywhere on the streets of Nairobi there are jacaranda trees w/ ~~soft~~ lavender blue flowers, and coming in from the airport we saw a few giraffe (Giraffa camelopardalis) in the

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October 23 (continued) adjacent savannah. On my first day in Africa I am struck by similarities to Latin America: bright ads on the bus stop shelters, barefoot kids everywhere, diesel fumes, lots of fresh produce, people walking everywhere. W/ two others we took a mini bus to the national park, first spending ≈45 minutes in a sort of zoo near the entrance. Saw a _Mabuya striata_ sunning at the base of a stone house. Soon after entering the park, Bob spotted a big leopard (_Panthera pardus_) in a tree, sprawled on a limb. While we watched, it looked our way then turned and in a couple of bounds was down the trunk and out of sight. Three giraffe near us abruptly turned parallel and pointed in the leopard's direction. Photographed a red-cheeked cordon-bleu (_Uraeginthus bengalus_) eating something in dung. In three hours we saw thousands of mammals, including various antelope, blue wildebeest (_Connochaetes taurinus_), Burchell's zebra (_Hippotigris quagga_), warthog (_Phacochoerus aethiopicus_), eland, waterbuck, bateleur eagles (one w/ a young one next to it - olive gray, the texture at a distance of a stuffed toy), ostrich, olive baboons, and monkeys. We spent ≈30 minutes walking a trail littered w/ hippo dung along a deep stream (≈10m wide), and photographed several turtles Bob thinks are _Pelomedusa subrufa_ basking on emergent limbs.

October 24 We slept late and relaxed, still pretty jet lagged. I woke up ≈0300h w/ a terrible leg cramp, almost my

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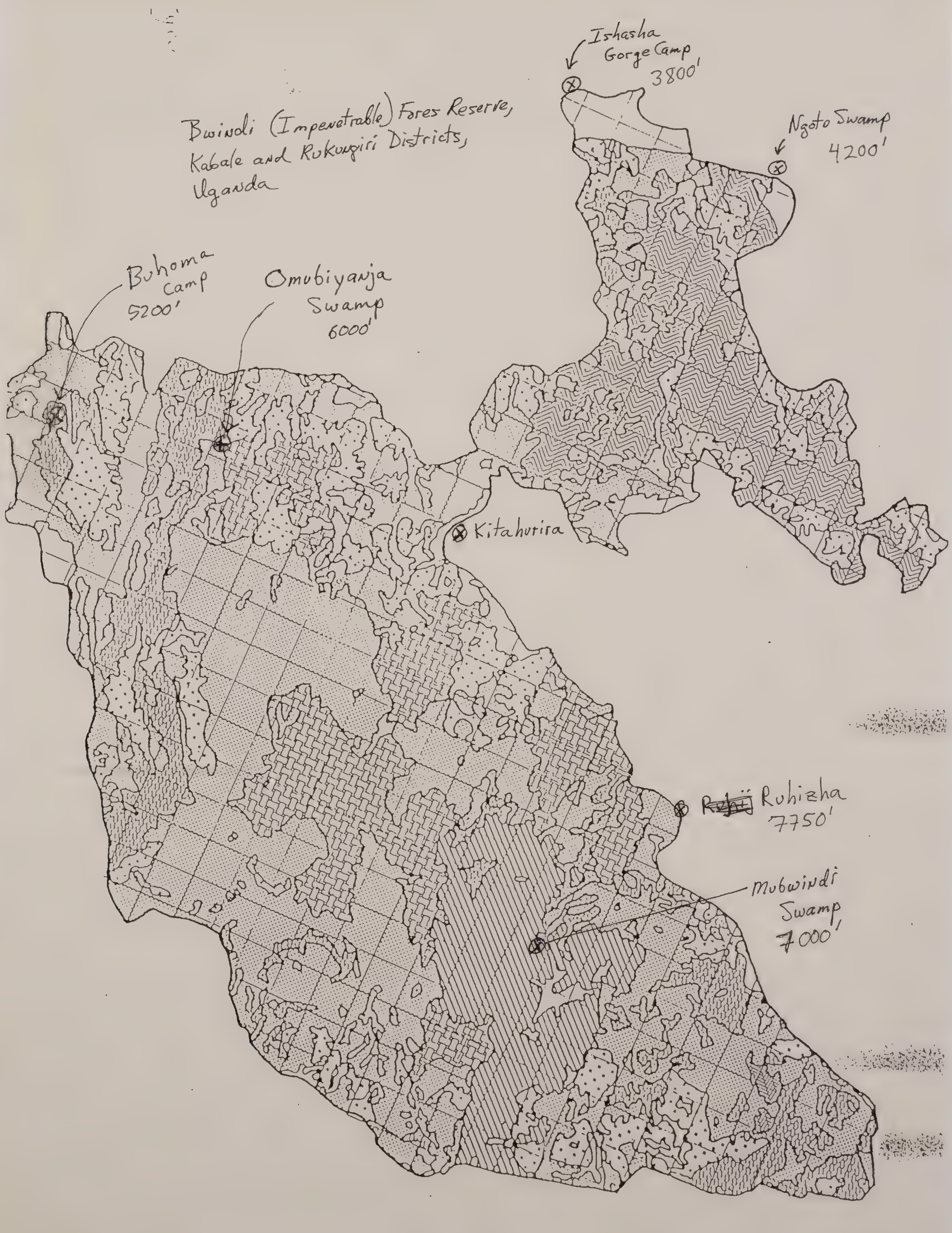
October 24 (continued) upper right calf swollen and hard – took a few minutes to go away, and I must have pulled a tendon because I was limping 'til mid-morning. Out to the airport by noon, where Jens and Bob successfully argued our huge quantity of luggage on Kenya Airways for only $70 overweight fees (Jens to the K.A. woman: "you wouldn't want to keep these bags"). Flew west over Lake Victoria which is so large it can't be seen shore-to-shore from 35000 feet in a jet. Uganda customs in Entebbe was slow but hassle free, and we were met and taken to Kampala by John Mitchell, Bob's friend who works for CARE and facilitated our trip. His Somali wife fixed us a fabulous dinner, reminiscent of the Ethiopian restaurant in Berkeley.

October 25 Kampala to Kabale, Uganda

We left the CARE office at 0940 h, and had lunch of avocado salad, goat, and rice in Mbarara at ≈1400 h. ≈20 mi WSW of Mbarara a large *Dispholidus typus* crossed the road in front of us, and ≈35 mi WSW of Mbarara we hit a *Chameleo* sp crossing the road at 1530 hr in hilly cultivated country. Over this entire section of road there was scarcely any undisturbed land in sight – everywhere people, cattle, and goats. No horses, very few dogs, no pigs. Red dirt everywhere, drab gray mud houses w/ thatched or tin roofs, and women in bright clothing.



Bwindi (Impenetrable) Fores Reserve,
Kabale and Rukungiri Districts,
Uganda
Ishasha
Gorge Camp
3800'
Ngoto Swamp
4200'
Buhoma
Camp
5200'
Omubiyanja
Swamp
6000'
Kitahurira
Ruhizha
7750'
Mubwindi
Swamp
7000'

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October 25 (continued) Ruhizha, Kabale District, Uganda, 7750 ft.

We arrived here ≈2100 hr, after ≈2 hour ride over a tortuous rd from the nearest settlement. This is a field station run by CARE's "Development Through Conservation" program and WWF, supervised by a wife-husband team. Jan Kalina greeted us w/ dinner, and afterwards we found an adult *Chameleo* sp. (3 horns) ≥2 m above ground and at the end of ~~a~~ a drooping emergent stem asleep. Jens also found ≈8 little ones on grass stems hanging out from the road cut bank — are they so positioned to avoid predators, catch the earliest sun, or both?

October 26 We had breakfast w/ Jan, met various Ugandan park personnel, and walked around the station. Much cleared country to one side, and uncut mountain forest in other directions. Brief sun and cool and cloudy. Jim found a small *Chameleo* which like the others tends to leap from the hand and curl up as it lands on the ground. After lunch from ≈1350-1600 h we walked down from headquarters ≈100 m then along a north-running ridge about a km to several old ruined houses. We caught 7 *Adolfus sp* and saw others: on short rock faces along the road cut, in sunny spot on a narrow side trail, and basking on an angled board of an old house (photo only). Jens found two communal nest sites on east-

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October 26 (continued)

facing rock faces along the road to the ruin. "Site #1" was 1m above ground in a hidden flake crevice, vertical, ≈ 5cm wide & 8cm tall. It contained a cluster of 12 white adherent fresh eggs in a mass ≈ 5cm long and 1.5 cm wide, vertical in the crevice and arranged horizontally stacked. There were 21 old eggs, some obviously hatched, covered in dirt and interspersed w/ roots. "Site #2" was in red dirt among rocks on the road cut wall, ≈ ½ m above road. This site had 19 largely adherent fresh white eggs w/ advanced embryos that look like Adelfus sp., and 31 old eggs - red dirty and grown threw w/ roots. We saved all eggs (HWG 2098-2101). Measurements for eggs (fresh) at "site #1" are 8.3 X 15.6 mm, 8.4 X 14.5 mm, 8.3 X 15.0 mm, 8.3 X 15.0 mm, 8.3 X 14.4 mm; for fresh eggs from "site #2" are 11.7 X 20.9 mm, 11.1 X 15.6 mm, 11.1 X 15.5 mm, 11.6 X 15.6 mm [last 3 adherent], 10.5 X 16.2 mm 10.1 X 16.1 mm, 11.1 X 17.8 mm, 12.3 X 20.4 mm. The ♀ I grabbed (HWG 2096) has 4 large shelled eggs in her, suggesting 4-8 females nested at each site w/in a short time. At ≈ 1730hr we drove w/ Jan out the same north-running ridge and then down the NW side of it 3-4 km to an old mine, just above where a stream crosses the road. Bob and I entered the cave (from which water flows) a few meters looking for snakes. It is an erie place, the entrance shrouded in vegetation. The rock face over the entrance (which is about my height)

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October 26 (continued)

is stained w/ broad bright stripes of yellow and orange. As I walked back in there was a sudden noise of loud, almost boom-like quality, accompanied by high pitched cries — in the light I could see the brown bodies and orange-glowing eyes of dozens of fruit bats. We found nothing under the mining debris scattered around, and explored the swampy area upstream (to the SW I think) of the crossing until ≈1940hr (after dark). There are several houses up hill, and the entire time we were followed by ≈10 African kids (≈6-16 years old, all small for their ages by my biases), shy but also mischievous. The boys wear shorts and T-shirts, the girls simple straight dresses, and all of them are covered w/ a layer of dust. Their body odors are rich and strong, almost offensive and yet intriguing, like being in a group of large ungulates or something. Around the stream and swamp we got frogs of the genera Hyperolius, Phrynobatrachus, Rana, and Afrixalus. We couldn't enter the largest swamp area due to its depth, but the Africans ran laughing out on it for 8-10 meters, their weight insufficient to penetrate — their movements caused the mat to undulate over a large area, as if they walked on a water bed! ≈1900hr I walked up the road to look for sleeping snakes and lizards in the roadside vegetation, and saw at a distance of ≈75 m a small cat that

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October 26 (continued) was probably Felis lybica (based on size and the fact that according to Jan Africans here almost never have house cats). At ≈2030 hr I found a ♀ Chameleo johnstoni asleep on a hanging vine or twig that emerged alone for ≈1 m and ended ≈3 m above the slope I stood on — like the others we've seen asleep, she faced up-twig from the end, w/ tail curled.

October 27 Partly cloudy at 0700 hr, and much sun by 0800 hr. I caught a Scincella-like skink active just inside the door of our house at 0950 hr. Spent the morning preparing for trip to Mubwindi Swamp. Our porters spent ≈1 hour arguing among themselves about division of loads, just like in travel books! We left at 1240 hr w/ Vincent the Game Ranger and another Ugandan, the porters and camp cook having gone on already.

Mubwindi Swamp, Bwindi Forest Preserve, Kabale Dist., Uganda

We arrived here ≈1500 hr after a strenuous walk up and down a couple of 600-800 ft. gorges. Overcast and intermittent light drizzle throughout, and a few minutes after we arrived an hour-long hard rain commenced. We are camped on a terrace a few meters south of the south border of the swamp. Saw lots of old elephant dung on the trail coming in, and enormous, water-filled tracks by the swamp at one place. Vincent says the elephants come here in the dry season, and that now they are up higher in the bamboo zone. During the rain storm the 7 of us huddled under a tarp w/ our cooking

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October 27 (continued) fire, our eyes burning and our feet cold and wet. There are poles in the water where we crossed the swamp, but we'd worn shoes or jungle boots and couldn't avoid going in. I had just realized trudging up slope behind Vincent that the unrecognized (but somehow familiar part of his odor is cooking fire smoke. Our cook dries wood for cooking by using long limbs that dry progressively as they are slowly pushed into the fire. Three species of turacos are calling loudly from the surrounding trees as mist rolls over the late afternoon ridges. Rain had stopped ≈1600 hr and we quickly set up our "4-5 person" tent. After dinner — beans in tomato sauce and sauteed onions, potatoes, and sweet potatoes — Bob, Dennis (Ugandan), Jens, and Jim worked ~~the~~ the swamp. Vincent and I circled the swamp on a trail from ≈ 1740-1940 hr. We found several frogs (Phrynobatrachus in water of a tributary, several Leptopelis on vegetation, especially branches ≈ 2-3 m above ground in places where vegetation forms a canopy tight over the trail) and a juvenile Chamaeleo sp. (on the end of a vertically hanging branch, ≈ 2.5 m above a slope, facing up twig w/ tail curled).

October 28 A loud chorus of turacos and other birds at dawn. We stumble out ≈0730 hr for breakfast of two slices of bread and coffee. I add a berry flavored "Power Bar" and the others are so put off by its appearance (an alloy of dogfood and taffey) they refuse my offer to share! Slept well, but the frogs in bags right outside the tent near

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October 28 (continued)

my head made hopping and croaking sounds that I at first mistook for someone walking and tossing stones in a methodical way. While we ate two ibis flew low over the swamp in tight formation, like jets, squawking loudly like New Year's noisemakers. One pair of Hyperolius have laid a flat, round sheet (1 egg deep) on side of a plastic bag, and Bob says they are typically placed just above water level on the sedges. Our camp faces N across a small end of the swamp arm running from NW (our end) to SE, ≈50-60 m across and ≥100 m from the end to the "bridge" of poles in the water where we waded across from the trail coming in. Swamp is almost a monoculture of sedges 2-2.5m high above water. Tallest surrounding trees are ≈30 m, many festooned w/moss. By 1000 hr there are heavy clouds after a brief burst of sun earlier. Photographed and pickled while ≥2 sp. frogs called from the swamp. Great Blue Turacos flew over w/raucous croaks, flashing bright blue-green over wings; yesterday one dropped into a tree over our camp that had bright red under the wings. From 1430-1630 hr I walked SE w/ Vincent (Game Guard) for ≈2 Km along the SE border of our arm of Mubwindi Swamp. We saw elephant droppings everywhere, and places where their huge footprints went out into the swamp edge; old gorilla nests on the opposite slopes; and fresh felid droppings ≈the size of lynx and therefore probably golden cat. A cloudy afternoon w/ periodic lt. drizzle (heavy rain started soon after we returned to camp). Vincent says the commonest snake here is Atheris nitschei, which they see coiled on leaves. Back at camp, huddled around our fire under the

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October 28 (continued) tarp, I say "We say smoke follows beauty." Vincent replies, "We say smoke follows one who defecates too close to the trail." Heavy rain from 1700 hr til after 2100 hr, and the stream that runs along SE border of swamp (in it – so this is really a marsh) is going fast. Bob & Jens went out into the swamp ≈1 km SE of our camp and got more frogs plus 2 chameleo that are not the three-horned C. johnstoni we've been catching. Vincent and I walked the trail along SE edge of swamp from 2000-2100 hr but caught only a Leptopelis kivuensis. I fell into over boots in an area of elephant tracks and water to over my knees, finally pulled out w/ help of a good walking stick Vincent cut me this afternoon, and then was getting cold w/ a boot full of water and mud. Later, back at the fire it all seemed somewhat primal: around a sheltered fire in the African night, overlooking a swamp frequented by elephants, reeking of smoke intermingled w/ our own odors, surrounded by a dark hard rain. Helps one imagine the consequences of inventing fire! Bob Drewes and I lapsed into a conversation about the movie "Quest for Fire."

October 29 Partly cloudy, some blue sky, a few scattered frogs calling when we awoke at 0700 hr. Bob has already explained to us that throughout Africa people believe firmly that chameleons have a deadly bite and will not touch them; and that the reason we can let them bite us is that we are white. Now he convinces Dennis (student from university in Kampala) to hold one

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October 29 (continued) from last night, and he in turn talks Vincent the same Guard into trying it. Vincent seizes the lizard behind the head, it struggling and gaping, holds it a few seconds and says there are waves moving up his arm, then gives it to Bob and runs several meters laughing, shaking his arms, and jumping. John the cook flat refuses. Dennis tells me there are no fish in this swamp. We break camp and take short walks in the AM then leave between 1100-1130 hr, first around the end of the swamp then back by the trail we came in on - probably ≈5 km total. Part way up the steep first ridge NE of the swamp Vincent catches up to me and says he promised to show me gorilla nests - so he has run up to that point and will later return to organize the porters. At 1220 and 1223 hr I grabbed adult *Bufo* hopping beside the trail. At ≈1230 hr Vincent takes me ≈50-75 m off trail down a gorilla trail - basically trampled down vegetation ≈1 m wide that crosses our trail and goes out over a steep slope of open (no big trees) dense viny vegetation. We fall through constantly. He shows me two nests a few meters apart, each a trampled down platform w/ dung on the edge, one where an adult has been and one where a juvenile slept. A few minutes after we crested that ridge a storm came through that lasted over an hour and thoroughly soaked us; some thunder and lightening and rain in dense blowing sheets. I stayed warm, thanks to a polypropylene undershirt and Goretex rainjacket plus my largely useless poncho. Rain ended as Jens and I walked through

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October 29 (continued) "Bird Valley" (Jan Kalina's name?), and by then I had to stop to empty water out my boots. The last long hill is steep and climbs almost 1000', and Jens and I egged each other on. At one point I thought of Wendy Roberts and knew she would roar past us not even panting! Jens and I periodically lapsed into disbelief that our porters, most of whom look ≈ 6-9 years old and are probably twice that (judging from questioning the kids who were following me around the evening of the 26th), who carry loads of 50-70 lbs. up and down these slopes on their heads — barefooted, w/out slipping or panting heavily, for a pitiful wage.

Ruhizha, Bwindi Forest Reserve, Kabale Dist., Uganda

Jens and I arrived here ≈ 1500 hr, preceded by Jim and Bob. The porters, Vincent, etc. arrived about an hour later, even tho we met them going out to get our stuff on the trail. Had a Power Bar, orange drink, and two slices of salami — juicy, greasy meat seemed absolutely delicious! Dinner w/ Jan and Tom, then to bed, very weary at 2100 hr and a fitfull night. I dreamed Claudia, Chris Schneider and I were cooking dinner. I dropped a huge skillet of boiling oil on the floor, had to leap and hang on to some bar to avoid burning my bare (?!) feet, and Claudia was yelling at me for ruining everything!

October 30 Overcast. We are still settling into the social scene here — sharing a house w/ Jonathan Baranga, Deputy Director,

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October 30 (continued) eating sort of meal to meal w/ jam and Tom or food that suddenly appears. Over breakfast of bread, margarine, and jam sandwiches, we joke about dressing up as a giant chameleon (a la the centipede costumes in "Bay to Breakers") and terrorizing a local village on Halloween. From 1030-1230 hr I walked out the ridge road toward the house ruins we searched a few days ago, hoping there would be snakes basking in the bright sun. At 1045 hr I spotted an Adolfus ≈3 m above ground on a fallen tree trunk ≈25 cm in diameter on an east-facing slope, vertical and perpendicular to the late morning sun; it dashed down the trunk and out of sight at my approach to 4 m. At 1055 hr a ♂ (wide head) Adolfus in full sun on the east side of a live tree trunk (dia. ≈40 cm), ≈30 cm above the ground; dashed around trunk and up ≈4 m when I reached for it, and ≈2 minutes later was headed down to original site. I grabbed and got only two pieces of writhing tail. At 1112 hr an Adolfus on a stump ≈10 cm in diameter and 30 cm high emergent from dense leafy low vegetation on an east-facing road cut, body horizontal and perpendicular to sun — the only sunny place to bask in many square meters except on leaves (NB: which this species doesn't use as perch); ran down into leaves as I approached to 3 m. At 1120 hr a gravid ♀ (narrow head, swollen abdomen) Adolfus horizontal & perpendicular to sun on an east facing dirt roadcut bank, ≈1 m above road and 40 cm below grassy lip of bank. She was a few cm from a hole 35 X 20 mm

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October 30 (continued) (photos) into which she disappeared when I approached to ≈ 2 m. Digging I found a split in the burrow ≈ 2 cm in; one branch went up slope ≈ 25 cm and ended, the other down ≈ 20 cm to an exit hole hidden in grass through which I suppose she escaped. Both arms of the burrow were shallow, < 3 cm under the surface. Walking back at 1200 hr I found a sheet mass of frog eggs w/ capsules ≈ 8 mm and black eggs ≈ 1 mm, one egg thick, and including ≥ 75 eggs and covering ≈ 20 × 8 cm in an irregular sheet – Bob says maybe Ptychadaena. This morning Jens found two more Adolfus nests under exfoliating rock flakes ≈ 1.5 m above the road coming into the field station. Nest "site 3" faced S and had 19 "old" eggs – infused w/ dirt and small roots. "Site 4" faced SE and had 45 "old" eggs, 1 "old" egg w/ a dead "near term" embryo, and 16 new "fresh" eggs in 4 adherent groups of 4 each. Jens found the fresh eggs together in a mass ≈ 12.5 cm wide and 22.5 cm high. Measurements of the fresh eggs are: 15.6 × 7.9, 15.5, 15.4, 15.7; 15.2, 15.1, 15.1, 15.6; 15.6, 15.6, 14.6, 14.7; and 18.2, 18.2, 18.1, 17.3 mm – overall impression is of uniformity w/in clutches and disparity among them in size, suggesting deposition over a period of days or even weeks. After lunch Jens and I went down the steep trail behind Jan and Tom's house, thence by road back around in a circle up to the station by road. Stopped on the way down the steep trail to climb a few feet up a tree covered w/ bright green moss, hoping for Atheris. At 1536 hr

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October 30 (continued) along the road, at least 3 black and white colobus monkeys jumping from tree to tree, acrobatics reminiscent of New World spider monkeys. At 1613 I caught a ♀ Bufo kisoloensis hopping beside the road in leaves and moss, into which she sought refuge. At 1628h we spotted an adult ♂ adolfus on an east facing rock face beside road ≈2.1 m up, which went in an adjacent (≈3 cm) hole in the rock. At 1730h w/in ≈10 minutes we were surrounded by flying termites, and wondering why no birds were after them. At 1800h there was a sudden hard, dark shower. Reading Leaves of Grass, which she loaned me, I wondered where and who Wendy Roberts was when she read various parts of this — I must ask her. After dark Bob gave a spirited slide show on African herps which elicited many questions and comments from the Ugandans. Dinner w/Jan and Tom, then we returned to find our house swarming w/driver ants!

October 31 Cold, hard rain when we gradually fumbled out between 0630–0730h. Ants everywhere — there is much stomping, cursing, sweeping, spreading of ashes etc. as we have coffee and bread. The rain turns into a real storm that lasts most of the day — our house is very cold (≈10-12°c) and we huddle, drink tea, our breath steaming and chat - frustrated at being pinned inside. Sun finally breaks out ≈1630h and we take still more photos of the Virunga volcanoes to the SW, swathed

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October 31 (continued) in bright white clouds and framed by green montane forests in the foreground — our porch view. I read some of Walt Whitman's Civil War poetry — whew! — and worked on my snake book. Mid-afternoon we lapsed into a discussion of our toilet. It is a large, sturdy wood shed w/ wood roof and floor and walls and an open door on the front; a rectangle ≈ 10 x 25 cm through which to shit; and a board cover w/ upright pole handle that the paper slides down on. One squats deeply, and Jens has been complaining of it. I found that holding the cover a few cm off the floor by its handle in front of me as a counterweight helps my balance! We are all mystified that so much wood goes into such a large shed, to incompletely surround such a small hole — why not some of that material for a one-hole platform? Jens brought ≈ 10 extra baseball caps of various brands and colors, and midafternoon he suddenly began passing them out to African workers — our cook, etc. This proves a problem — there aren't enough to go around, and soon everyone in the vicinity is badgering us for a cap. Tom let us each take a couple of captured poacher spears (Vincent had told us of the cache), and one of mine is a bizarre w/ a float, made from a piece of large diameter cane or bamboo, at the back end — used for hippos. Earlier Tom and Jan had their houseboy bring us a packet of Halloween treats.

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October 31 (continued) We went to their house for dinner, all carrying baloons and Bob wearing a big Halloween mask, pounding their door w/ a spear. We were joined by ~~Bob~~ Wilhelm Möller, a film maker who will go to Buhoma tomorrow w/us. Bob drank too much wiskey, talked too much, and began hassling Jan again about not letting him collect here last February - I made an aside which he heard and then backed off; Jens, Jim, and I left early and talked about before turning in.

November 1 Packed for the trip, and left ≈ 1130 hr in two Toyota trucks.

Kitahurira, NE edge of Bwindi Forest Reserve, Rukungiri Dist., Uganda

Very close to this settlement we found a gravid ♀ *Bitis nasicornis* at 1320 hr, and kept it despite the smell.

Buhoma, Bwindi Forest Reserve, Rukungiri Dist., Uganda

We arrived here ≈ 1600 hr and walked around, caught *Rana angolensis* in ~~wet~~ water & grass beside the 2-track at our campsite. I found a land snail the size of my fist (Bob says its *Achatina*) that has many little dark arthropods w/ swollen yellow abdomens crawling on it. Set up camp and had dinner of baked sweet potatoes and peanut sauce - lots of it but nothing else. Walked ≈ 2100-2230 hr under a bright moon, Jim O'Brien got a *Rhampholeon* sp. ≈ 1 m above ground on a twig in our camp area, and Bob & Jens got several green *Hyperolius* cf. *frontalis*.

November 2 Awoke late, ≈ 0730-0800 hr, because sun filters in through canopy late. Posho for breakfast - a slurry of flour and water, much like "Cream-of-Wheat", eaten w/ sugar, butter, chopped bananas (4" long bananas - putting them in my idea)

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November 2 (continued)

and milk. Our "choo" (toilet) is a small hole in a mound of dirt, braced by crossed sticks. This place looks a strange combination of low and montane wet forest if compared to Costa Rica, in that the trees are quite tall (>>30 m) but not big – few have substantial buttresses and I haven't seen a really big one yet. They are often festooned w/ thick wet moss. There is a dense understory of herbaceous vegetation ≥1 m high, lots of ferns including big tree ferns. Bright blue sky all morning. I walked for ≈30 min out and back a small trail that crosses three streams, then ≈1 km downhill (≈SW) on the 2-track. At 1105 hr found a cat scat ≈ size of golden cat, and two ~~unfound~~ (Breves found 2 *Phrynobatrachus* here) frogs calling from ground level around a big seep beside the road. Returned ≈1215 hr to dry my two bags of wet clothes in the sun. This place is very different from La Selva (of course, this is ≈5200' el.) – almost no bad insects, no real danger from snakes. I asked Vincent what is the most dangerous thing in the forest, and he said it's holes made by miners, pit sawers, and poachers – you could fall through vegetation into one. Then maybe elephants, but they usually run from people here in the forest. Many local Africans use the 2-track we drove in on by our camp – I saw 6 in ≈1 hr this morning, all of them w/ baskets on their heads. Dark clouds rolling in from NE at 1230 hr, and we got a brief shower at 1320 hr (it had drizzled much of yesterday

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November 2 (continued) afternoon as we drove in. At 1515hr a thunderstorm hits, slows down, quits, and it gets cold by 1800hr. We sit around the fire and listen to news of heavy fighting in nearby Rwanda on a portable radio brought by Dennis - says rebels have been routed and fled to SW Uganda! According to Jan Bwindi means the darkest of dark places; local legend says a queen once ruled the land and if you say her name while near the swamp you die. Jens and I walked the stream near camp and found lots of <u>Hyperolius</u> w/ yellow backs and turquoise vocal pouches, plus several egg masses on leaves, one a conglomerate of ≈4 masses together in a pendulous mass of moss on a tree limb. He spotted a <u>Rhampholeon</u> ≈30cm above ground and 1m from stream, head down and vertical on a green leaf. Also <u>Rana angolensis</u> at streamside. The stream is 1-4 m wide w/ pools, riffles, and streams; we waded up and back to the entrance point from 2030-2215hr. Wendy would love it!

November 3 Bob, Dennis, Vincent, Wilhelm and I pack and leave at 1030hr, and Jan drives out on the road to drop off at the start of a path up to "Two Pond Swamp" - later we learn its real name. <u>Omubiyanja Swamp, Ibare Hills, Bwindi Forest Reserve, Rukungiri Distr., Uganda</u>. Bob and I arrive here last after a hard three hour hike at 1430hr, almost all up a trail so steep it stares at your face, ≈3Km and from 5200-6000' el. Took me an hour to recover! Some rain on the way. We arrive, make camp, and tho still light Bob hears a <u>Phlyctimantis</u> go "boink" in the swamp - sound like a loud, isolated drip in a metal sink. Also <u>Hyperolius</u> and <u>Phrynobatrachus</u>. There is a group of

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November 3 (continued) pit sawers up-slope from our camp of questionable legality and Vincent, his 30.06 rifle prominently slung over his shoulder, tells them to give us fire coals and a fresh cut plank to use as a cooking bench or he will arrest them! W/in minutes we have a big tarp shelter, a fire, and the pot of water boiling for tea and then beans and rice. Wilhelm Möller questions Vincent about the pit sawers because he wants to include them in a film about this forest. Two men will earn 200 shillings (≈$1.30/each) to carry a 14 foot long plank from here to the road on their heads! As dusk settles the pit sawers are still working – singing a chant as their saw, hauled up and down vertically w/ a man at each end, rings out. We are camped on the NW side of an irregular, elongate (≈600 m) swamp whose sides are mostly herbaceous vegetation. There is some open water and even areas of exposed mud. At 1830 hr two pit sawers walk in to meet us and one says he can catch frogs. It starts to pour and we scramble to prop up our tarp where it quickly sags w/ several gallons of rain water – Vincent collects a big white pale full in a few minutes. At 1905 hr the rain is so hard we have to shout, but the frogs are so loud we can hear them above the rain! The downpour stops ≈2000 hr, and we all hunt frogs in the swamp until ≈ 2135 hr. Several Xenopus (little dark ones, w/ buggy pinhead eyes and round faces) are seen swimming, and we catch Phlyctimantis, Afrixalus, and two

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November 3 (continued) or more species of *Hyperolius* calling. Bob is ecstatic as this is clearly our best frog collecting yet. A huge bright cream moon comes up over a high ridge across the swamp ≈ 2100 hr, illuminating a now clear sky, and thoughts turn to a beautiful, strong, athletic woman I know in Berkeley. There are stars overhead, but the lower ridges across the swamp are swathed in misty clouds, their edges set in sharp relief by the moonlight. A magic evening.

November 4 I woke at 0100 hr and noted the frog chorus continues but diminished. At ~~0530~~ 0540 hr only a few scattered *Phlyctimantis* calling, and at 0622 hr the only frog calls were some low chirps. At 0640 hr the pit sawers start up – ssssshh-work, very metallic, ≈1/second. At ≈0830 hr I started walking, first in wet meadow by the N end of the main swamp, then on a forested terrace above the main swamp SE of our camp. The tree trunks, branches, and ground are everywhere a rich, wet, vibrant green due to the heavy carpet of moss and ferns – easy to imagine the extreme crypticity of *Atheris* and *Bitis nasicornis*, even on the forest floor here. Came back to camp ≈ 1015 hr because clouds are gathering and I left my poncho there. Vincent walked to the "second pond" of this place's informal name, and says this is really one long marsh drained by a river at it's NW end, w/ periodic open water "ponds" intermingled w/ wet, bog-like meadows. There are even hummocks

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November 4 (continued) of something that looks like sphagnum moss to me, but Wilhelm thinks it's actually a grass, interrupted by widely scattered 3-4 m high trees themselves sagging w/ darker moss. Vincent makes rope out of sappling bark, uses grass to scour plates and cooking pots, and makes good toast by skewering mouldy bread vertically on small peeled branches. As we finish rice and beans and clouds come over at noon, Vincent suddenly jumps up and shows us the remains of an old poacher's snare right in front of our camp — probably for duikers he says. We break camp and start the hike back to Buhoma ≈1230h and at 1250h, just over the crest ≈6200' el. I catch a Bufo beside the trail. Took a different trail down, even steeper but shaded as we were always in forest — whereas trail up was in full sun of cleared land for first hour or so and second growth for sometime thereafter. Vincent showed me to use my walking stick w/ the foot going forward — opposite of my inclination but more effective.

Buhoma, Bwindi Forest Reserve, Rukungiri Dist., Uganda

Bob and I walked into camp 1505h, the last 30 minutes in a real downpour. This AM Jens and Jim found a hatchling Dasypeltis atra (obvious umbilical scar) climbing the stem of a recently cut leafy plant in the middle of the 2-track to our camp; its only response to my handling is slow crawling (it is opaque-eyed, in pre-shedding condition). This AM they also found a quiescent

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November 4 (continued) Dipsadoboa sp. coiled ≳ 3 m above the stream in a bush, which enlarged its head when they caught it. I could only evoke sustained crawling and persistent head hiding under a circular, compact (but not closed) body coil in handling it. It is a powder green snake w/ silvery eye & vertical black pupil, black interscalar skin, and a torquoise blue venter that comes up on the sides of the tail — replaced by irregular yellow on ventral side of several inches of neck and a white chin. I palped a relatively large Rana cf. angolensis from the snake that had been swallowed head-first. Rain continues as dinner is served, and Vincent continues to charm everyone w/ his quick wit. On the way down from the Ibare Hills today, he told us the big black millipedes (≈ 5 x 160 mm) we see commonly will coil around your penis and cut it off. That "Mubwindi" just means in Bwindi. Around the fire, he tells us that his two wives live in separate houses because they fight when together. Someone ask how he divides his time (he is a joker) and he says, straight-faced, that he makes three trips to each house each night; then that he is envious of lizards (he watched us evert hemipenes) for their double organs. Vincent Bashekura is 5 ft. 3" tall, weighs 55 Kg, and is 31 years old. It is still drizzling when we all go to bed at 2100 hr.

November 5 Still drizzling at dawn, but the sky is broken blue at 0800 hr. Great breakfast — Leo the cook bought some

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November 5 (continued)

hens' eggs from a passerby, which we ate fried w/ smoked toast smeared w/ marmalade Wilhelm somehow produced. He will leave after breakfast and be missed. Took photographs, pickled, etc. during a morning that didn't turn brightly sunny til almost noon. ≈1100hr while we were working Leo brought in our first Leptopelis for this site, which he found hopping on the path through our camp area. Then he fixed me a bath - first in ≈one week. He had prepared a dense platform of green leaves to stand on - w/ a stout limb beside it for hanging clothes and towel, a basin of very hot water, a basin of cold water, and a cup. Very warm water and shampoo for the head and crotch were absolutely glorious! Then I walked several hundred meters up and down the two-track, checking trees and logs to the side, and down the forest trail through three creek crossings - didn't see a herp, tho I was especially alert to sunny spots. Returned for lunch and note writing at 1400hr as storm clouds closed over, but by 1630hr we'd still had scarcely a drizzle so walked out along the 2-track again and picked up a ♂ Bufo in wet grass to keep alive for Anna Graybeal at 1650hr. On the BBC's African news report at 1815 hr we learn that 500 Rwanda rebels overran a border outpost a few km from Kabale, the quiet little town through which we entered Bwindi Forest. After dinner we all went on separate walks - I went to the second stream crossing

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November 5 (continued) on the forest trail, getting a big ♀ Leptopelis on a shrub (see catalogue for details on frog captures) just out of camp. Took ≈30 minutes to get to the stream since I kept checking trailside plants for snakes and sleeping lizards – nothing. Waded upstream from the second crossing (leaving a large red flag so as not to miss the little trail on the way back! There are scattered Hyperolius calling, and several Rana angolensis and cf. Petropedetes in ferns growing from mossy boulders in the fast riffles. Walking in the stream and catching them I think about Dipsadoboa in its powder blue green livery, searching stream banks for Rana angolensis – surely the color (which to me is strikingly reminiscent of Boiga cyanea of SE Asia and Bothriechis bicolor of Central America) is cryptic when the snake is asleep on vegetation in the daytime. That is a different sleeping strategy than comparable frog-eating snakes in the neotropics (e.g., Leptodeira sleeps in bromeliads), but maybe at this altitude the snakes need to be exposed in the daytime even though they are nocturnal, in order to thermoregulate and digest prey. Just as I was returning to the trail, looked up to see a little treefrog perpendicular to the small branch on which it sat, ≈3 m over the stream. That is fun to see, and brought back very pleasant memories of Costa Rica. On the trail back, encountered Jens and Bob who had found a Dipsadoboa ≈ 8' above the stream on a vertical, moss covered branch, extended and motionless – as Jens called to Bob, 'the

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November 5 (continued) snake started up the limb. I palped a 2.3 g Hyperolius (the kind Bob calls "red," which is yellowish) from it, a gravid ♀ freshly eaten head-first. It is colored like the previous, except no yellow on neck.

November 6 An early dawn, sleeping bag haiku; inspired by wonderful memories (the only privacy here is retreat into daydreams) and perhaps reading some Walt Whitman yesterday: "Just and musk, share two letters, u-s". Packed up and left ≈ 1015 hr, arrived at a tea factory ≈ 1130 hr to see about availability of their guest house. Roads in this region are so rough one has to hang on all the time to keep your head from suddenly crashing into the side of the truck. We arrived at our Ishasha Gorge campsite ≈ 1245 hr

Ishasha Gorge, NE boundary of Bwindi Forest Reserve, Rukungiri Dist., Uganda

This is a hot open campsite on a hill covered w/ grass, shrubs and scattered saplings, overlooking to the SE to the Gorge on the edge of the Reserve; we walked for ≈ 20 minutes through high grass and plantations to get here. Absolutely sweltering, and no drinking water yet. Jens bought 10 pineapples for ≈ 80¢ and three of us ate one in 5 minutes – and I'd just been thinking about piña this morning! W/in ½ hour the weather transformed dramatically to rain blowing in to our tarp, lightening, etc. – and us on a naked hilltop! We quick pulled tarps, ponchos, etc. over us, collect rain water off the tarp edges, and have another slice apiece off the rapidly dwindling salami I brought. The game guards go through a pretty funny routine (to me) of

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November 6 (continued) re-orienting their tarp. Rain finally stops ≈ 1545 hr, just as Jan returns bringing Bob's friend, a writer for *Outside* magazine, Michael McCray. Back to our specimens from last night. Clouds up heavily as we wait for dinner ≈ 1830-1900 hr, w/ some wind and it seems chilly. Big groups of hornbills w/ bright white and black coloring fly into the Gorge below us — the bird species Jan has been studying for 10 years, so she is really excited to see them. We went into Ishasha Gorge ≈ 2045-2210 hr, and worked along the big river and also the smaller Kaborga River, in which Jens got 2 *Rana angolensis* and 2 *Hylarana*. Benjamin Bayenda, a Game Guard that joined us for this trip, went w/ me along the Ishasha. We walked across a big treefall along the river, and on the way back Benjamin said it was too dangerous and we cut new trail around it. The big river is boiling and brown. The trail down is almost vertical through rocky clefts, and Bob hurt his hand in a fall; takes ≈ 15 minutes to go up. I slept well, but like several other nights recently, I had long, detailed, weird dreams — something I almost never do in the U.S.

November 7 Partly cloudy and hot by 0800 hr, and 5 locals come to offer us a big rooster — there was much bickering, and I thought Steven the senior game guard was insulting the chicken's character in order to lower the price. Later Jens speculated that since they were speaking in

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November 7 (continued) local dialect, maybe the two were debating how *high* the price would be jacked, an appropriate kickback, etc — at any rate, we paid 1600 shillings, ≈ $3. Jens *wants* that chicken in *our* pot. At 1015h, Jens, Jan, Benjamin, and Francis (another Game Guard) went down into the Gorge. Saw a skink ≈ 6" long basking on a log half way down, w/ keeled dorsals, white lip stripe, and a distinctly attenuate tail (cf. *Mabuya*). We encountered two Africans, a man and a little boy, each carrying a plastic jerry can of locally brewed pineapple beer on their heads. The kid was clearly struggling, his neck quivering, and had glistening wet stripes of sweat on his neck (something I've seen rarely here, contrast to me who soon soaks through). Jens and I wondered if he's in training for adulthood. We walked upriver to the bridge, where Benjamin expressed disbelief that I would walk over the bridge of three fairly narrow logs. Crossed it and he ~~[illegible]~~ said we are courageous~~ly~~, so I tried to explain "scared shitless" to him w/out much luck. Along came Jan w/ Francis a Game Guard, and I asked them about a beautiful black clay pot on the head of a woman who came by — said I wanted to buy it for my girlfriend. They looked at me like I had commented on some aluminum sauce pot at K-Mart! Benjamin and I returned to the Kagena River (a tributary that joins the Ishasha just below where our trail from camp hits it), and walked up it for ≈ 30 minutes by

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November 7 (continued) wading in pools and clamoring over riffles. We quit where lying across a tumble of boulders is a boat-like wooden object that Benjamin says was being built for making banana beer:

≈3 - 3.5 m long

It is a hollowed out log, like a dugout, w/ handles on each end, and Benjamin says it is unfinished and thus was probably washed downstream and lost before use. He also said people here kill all snakes because they believe all are deadly. On the trail back up to camp Jens caught an Agama atricollis and the Mabuya sp. we saw earlier. Bob, Jim, and Mike failed to catch a big green snake they saw chasing a lizard in dense vegetation around a tree - Bob says probably Philothamnus but might have been Dendroaspis or Dispholidus - either more likely I think if it was chasing a lizard. Come back to camp at 1300 hr in a rain, eat "ground nuts" and half a banana. ≈1330 hr we get hit by the most powerful storm I've ever been in, still more evidence that this is a poor place to camp. For ≈30-40 minutes the wind howls over our little knoll w/ sheets of rain, our tarps banging and yanking out some of their poles. There was frantic yelling, banging, tying of ropes, etc. and everything

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November 7 (continued) outside the tents get soaked. Afterwards the light and cotton white clouds in Ishasha Gorge are soft and peaceful, as if the gods have relaxed again. Tried some more telephoto shots a la Mike Fogden's advice. At 1600 h we had a sudden visit from the local landowners and the head of the local "Resistance Council" head, who said we were welcome but they wanted to know our business. Out came snake and toad, and an impromtu show-and-tell by Bob made a good impression. At 1645 h, perhaps because the "Resistance Council" has checked us out, the locals are coming in groups of 6-8, staring at us doing chores and shooting the shit — their faces show a combination of anxiety and curiosity as if we were aliens! Twice now when showing a snake or a chameleon to local people, they have expressed the opinion that I must be taking a special medicine in order to do it. ≈1700 h Benjamin tells that some women from a neighboring farm say a swamp on their land has so many snakes they are afraid to enter — so we peel out of camp in a line of 10-12 people, walk for ≈10 minutes down a narrow path through chest high green grass, past the open doors of a couple of dirt-floored one room mud huts w/ eyes peering out, and entered an elongate, rank swamp beside a sweet potato patch. Bob found a tadpole and a metamorphosing frog, so we will return tonight. Benjamin talked to the farmers so that we file past their houses

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November 7 (continued)

tonight they won't think we are "night dancers." ≈1800 hr a small crowd arrives at our camp bearing an adult ♀ Chamaeleo ellioti on a branch, and quite a scene ensues as Bob shows the boy who brought it how to hold the lizard w/out dying – one matriarch (his mother?) has a look of extreme revulsion and turns her face away. Had the tough old rooster purchased this morning for dinner, killed out of Jan's sight as requested. ≈2045 hr we took a big group – all of us and most of the Ugandans – out to look for frogs & snakes. Walking the path and shining my light out over the grassy hills, I got a ♂ Chameleo ellioti ≈3 m out on an emergent grass leaf, head facing out. Frogs calling in the farmer's swamp and potato patch, and at 2115 hr I spotted and caught a juvenile Atheris squamiger ≈3 m above ground at the swamp border. It was in a circular coil lapping over a branch slightly larger than its own diameter, w/head pointing along the horizontal branch toward the swamp. Bingo! I just realized my #1 scientific goal for Africa. We also got Bufo (mine was calling on the edge of a water-filled potato patch furrow), Hyperolius, and a rocket frog (Ptychadaena) in the yam patch. Then trampled all the hell over the landscape, lost some of the time, largely unsuccessfully looking for various calling frogs. Also, to Jens and I's extreme chagrin waking up farmers, trampling lines through their

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November 7 (continued) millet fields, etc. Tomorrow a new site. We sit up past midnight w/ some red wine Mike brought & shoot the shit. Before turning in I went out on the edge of the hill to take a leak — stars and no clouds, trees on the ridge above Ishasha Gorge sillouetted individually on the horizon against a giant yellow african moon.

November 8 Woke late, ≈0800 hr, since my hung out wet clothes had blown to Zaire in a loud windstorm that came through ≈0500 hr, but Leo our cook had at some ~~age~~ point dragged everything in under the tarp. Took until 1100 hr to break camp and hike out to the cars, where we were soon surrounded by ≈25 curious local people. One little boy handed me, wordlessly, an old white plastic bottle — peered in and was surprised by 3 *Xenopus*! We didn't get away quickly. Stopped soon at Butogota to buy beer, coffee, and toilet paper. While Jens and I waited in the car a crowd of children surrounded us, and we soon had them in stitches by encouraging to touch our hairy arms, beards, and my bald head.

<u>Ngoto Swamp, Bwindi Forest Reserve, Rukungiri Dist., Uganda</u>

Arrived here ≈1450 hr after a deadly ride, at our camp in recently cleared land above a papyrus swamp that extends SW out of the adjacent Reserve into farmland to the N~~E~~E. Right on time, big dark storms zoom in from the N as we put up the tarps. Walking around afterwards, looks like this could be our best camp yet.

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November 8 (continued) As the sun disappears, a group of several chimps sets up a rachet from close inside the forest. Light rain starts ≈1910 hr and continues off and on through the night. At 2200 hr Jens and I photographed and caught a nice big *Hylarana albolabris* ≈70 cm above ground in a trailside tangle at the forest edge, perched horizontally on a twig ≤5 mm in diameter — it really did look treefrog-like too.

November 9 Bright and sunny at 0800 hr. Last night Jan Kalina pointed out how the Ugandans converse long after they bed down and again in the morning early, a soft musical hum coming from their group that is soothing — something I'd felt but not thought through earlier. This AM, ≈0400 hr, I woke up for the second night in a row w/ a toothache — and for that reason or that their group is 2 larger and has more volume now, found the rachet irritating! And all my wet clothes are mildewed. 0930-1100 hr I explored borders of the papyrus swamp, but couldn't go far in because of the pre-crotch height of my waders (and thus threat of water-borne disease) — looking for the supposedly "common once search image realized" (*fide* Pitman in "Snakes of Uganda") *Atheris nitschei*, but see *no* herps out in the emergent vegetation. At 1040 hr, 2 m above the trail at swamp edge, I photographed and collected a gravid ♀ *Hyperolius* (green dorsum, white lateral marking, pink groin and legs), humped and asleep on a live leaf facing the petiole

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November 9 (continued) The frog was conspicuous to me by its chocolate color but soon turned to dark green in a bag. Worked in forest on the way back to camp and dismantled a large rotten log. Still sunny w/ dark clouds passing to the south. At 1400 hr I felt something in my beard just below the lips, swatted and picked out a big black wasp, and got stung on the underside of my left index finger — immediate sharp burning pain relieved completely in ≈3 minutes by use of an Extractor pump! But, I felt nauseous and cold sweaty after lunch so I napped for an hour — awoke to a black and white colobus monkey sounding off like a motorcycle w/ no muffler in a nearby tree. Stuck to camp all afternoon, feeling shitty. ≈1800 hr listened to Benjamin expound the concept of "night dancers" to Michael. We all went out to a pool under an enormous forest treefall, then down to the papyrus swamp — I came back early due to wooziness and went to sleep. Others returned late w/ frogs, Bob having fallen in over his waders in the swamp.

November 10 Ugandans very quiet this AM — did they find out we were initiated? Jens and I stumbled out of the tent spontaneously and independently singing an off color version of "Nothin' could be finer..." only to find Jan walking behind us giggling. Gorged on pancakes! At 0940 hr set out w/ Bob, Jan, and Mike up the road into the forest in hot sun. Several spectacular views of colobus monkeys — once a ♀ w/ young, and once a big ♂; both times seated high in the crotch of an open

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November 10 (continued) tree, staring out w/ their enormous plumed tail hanging down like a plumb. Jan says they are the shyest forest monkey. We walked on and on, usually w/ forest on the right and farms on the left, expecting to come to a boundary where all was forest. At 1215hr Bob and I stopped to unsuccessfully chase an _Adolfus_ basking on a fallen tree (ϕ ≈ 25cm), then started back down. At 1234hr I spotted a juvenile _Agama atricollis_ on a large tree trunk on the farm side of the road, and as we circled for a rubber band shot spotted a big colorful ♂ on the same tree. Suddenly a small gray raptor zoomed in from up road, flew between us and the tree chased the lizard around the trunk once and flew off w/out it! Made it back to camp at 1340hr, having walked ≈ 5 miles - hot! Lunch and a bath cup by cup. Finally some breeze and drizzle ≈ 1630hr. After dinner, ≈ 2030 - 2135hr, we walked the road above camp, including an area of a small creek w/ sedges — no frogs calling, no herps seen. Tried to tease the Ugandans by walking down the hill into camp w/ our flashlights held in clampsticks overhead, but no reaction.

November 11 Woke up at 0330hr thinking about people, places, etc. Got up at 0700hr because we will have a long day. Finally (after 3 wks) getting used to shitting while squatting — this morning I actually lingered in contemplation of some little reddish thrush-like thing in adjacent shrubbery. Bob and Jan

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November 11 (continued)

over breakfast discussed the likelihood that the reason we see so little here is that the pastureland results from very recent (≥2-4 yrs) clearing and burning. We packed up, carted everything up the hill, and I turned the cars around to face out the 2-track. Just as we were loading the trucks, ≈ 0915h, two motorcycles w/4 Ugandans roared into our midst from the outside. Jan at first thought they were travelers and asked if they wanted to pass through, but I knew something was up because the lead cycle backed Steven, our chief Game Guard, up to a dirt bank before stopping. They were a thin man w/ mustache and white shirt who said nothing and soon took a position on the hillside and watched from above; a thin man w/ small goatee and bright brown shirt, the District Forest Officer; a shorter, heavier man in a blue windbreaker who was definitely authoritarian and sinister — thug-like in demeanor; and an average sized man in an overcoat w/ an AK-47 assault rifle slung under his arm. A tense 20 minute confrontation ensued, in which the intruders chastized us for not contacting them for permission, which they said even birdwatchers must have. Bob tried to deflect the conversation w/ a bunch of questions about local forestry practices. Jan ~~stood~~ firm, accepted no blame but was polite, and suggested they speak to her superiors in Kampala. Jens and I both felt this was Jan and our Game Guards' party, so kept back to one side of a pickup

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November 11 (continued)

and kept quiet. The accusations of trespassing were repeated and embellished, as were claims Game Guards (who work for the Game Department) have beat Forestry Department personnel planting boundaries. Francis the Game Guard (son of Steven) was looking past me w/ incredible intensity, hands on his 30.06, and begin to speak quietly: "They are all corrupt and we hate them. They hate us, and we fight a lot. Sometimes we shoot at each other." Benjamin also stands to the side, rifle in hand. After some harangueing tho, the guy w/ the AK-47 seems to relax, removes his trench coat (said to be local symbol of authority) and begins to tease Bob w/ questions about U.S. involvement in Iraq. Jan tells them we've got to be going, everyone waves, smiles, and off they go. Our Game Guards are obviously furious. We leave ≈ 0950 hrs, Jan's car first, and 2 minutes later our truck stops, seemingly out of gas. Jens and Michael eventually get it fixed - proves to involve gas somehow moving back and forth between the two tanks — and we are off and running at 1045 hrs. We stop in Katunga, a nearby settlement, for petrol and get embroiled in an argument over whether they'll sell us 1 or 2 jerry cans full (we get 1), and suddenly our buddy, the corrupt DFO appears! But now he's surrounded by people and seems friendlier; perhaps he's worried Jan will report him for the

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November 11 (continued) incident this AM. Shortly after leaving, near the turnoff to Ngoto Swamp, we caught a gravid ♀ Chameleo ellioti crossing the road in sun, ≈1400hr (not noted).

Ruhizha, Bwindi Forest Reserve, Kabale Distr., Uganda

At 1615hr, as we pulled up the last hill to the field station, I spotted a spectacular large (56g) ♂ C. johnstoni perpendicular to the late afternoon sun, ≈3m up on a slender emergent roadside plant, facing down (thus ready for sleep?). Bright lime green w/ bright yellow bars on sides. It started down the stem as we approached for photographs — most impressive chameleon encounter I've had yet! Terrific dinner from can goods at Tom's (Tom is in Kampala lobbying for National Park status for Bwindi), w/ Bob frying the ham on a camp stove, drink in hand, our version of the jovial backyard barbeque host. We gorged on ham, chutney (big can), corn, and macaroni w/ cheese.

November 12 Slept fitfully - woke up at 0200hr thinking of how to get my live stuff home safely. Everyone bitchy this AM — Jens nicknamed Jim "the Twister" because his bad back keeps him tossing their bunk set all night. Bob took my flashlight after I turned in, so afterwards went I got up for a drink and couldn't sleep, couldn't find it. Pancakes and coffee evened us out by 1000AM. Both the Dasypeltis atra from Buhoma and my ~~Ath~~ Atheris squamiger are shedding their skins, the latter turning

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November 12 (continued) from dirty olive to a nice powder lime green. also, it defecated w/in the last couple of days – withal, seems unlikely it was hurting when I found it. also, yesterday once when I checked the bottle it struck w/out freezing a gape. ≈1145hr I walked down the road to the NW of Rukigha for ≈1 km, until I met Jens and Jim, then returned for lunch ≈1400hr. at 1220hr several Adolfus sp. escaped into dense underbrush between the road and adjacent SW facing rock face; it is sunny and warm, not hot. at 1223hr caught an adult Adolfus in grass beside road that sought refuge under a small rock. Searched roadside vegetation slowly, hoping for Atheris nitschei – said to be the commonest snake locally, although no one has seen it since we arrived. At 1330hr met up w/ Jens and Jim, who have caught (w/ rubber band shots) ≈5 more Adolfus and taken cloacal temperatures, and found two more communal nests. Walking back Jens shoots a hatchling (?) Adolfus at 1338hr., 1 m up on the sunny/shade blotched rock face. "Site 5" was under flaking rock ≈1.2 m up on rock face, a mass of 28 eggs in an area of ≈20 cm high and 15 cm wide. There were 17 "old" eggs w/ slit shells and roots growing through them, in "clutches" (adherent groups) of 1, 2, 2, 3, 4, and 5 eggs. There were 11 "fresh" eggs in adherent "clutches" of 1 (14.6×10.9 mm), 1 (14.6×10.5 mm), 1 (16.8×10.8 mm), 4 (16.4×10.7, 17.5, 17.2×10.8 mm), and 4 eggs (16.5×9.6, 16.2, 15.7×8.9 mm). Thus a total of ≈7 clutches @ 4 eggs/clutch. The

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November 12 (continued) exposure was ≈ SSE. "Site 6" was on an ≈ S exposed rock face ≈ 80 cm above ground, 35 cm wide and 30 cm high hollow under a flake w/ the left side of the vertical cavity exposed. There was a total of 141 eggs or ≈ 35 clutches in this site. Fresh eggs were in adherent "clutches" of 3 (13.7, 13.5, 14.1 mm), 3 (15.7, 15.5, 13.2 mm), and 4 eggs (15.6, 15.4, 14.9, 15.2 mm). 131 old eggs were typically dirty w/ slit shells and fine interspersed roots; there were at least 3 adherent "clutches" of 3, 3, and 4 eggs. Great lunch of guacamole, french fries, and fried ham! At 1630 hr we had a photo session w/ the freshly shed Atheris squamiger (HWG 2135), placed on a horizontal branch (ϕ ≈ 15 mm, thus greater than snake) at eye level and threatened w/ a wadded large rubber band held w/ forceps. We elicited repeated gapes w/ head extended and fangs extended (≥ 6 times), body inflated anteriorly and head first drawn into a tight S-coil w/ edges level w/ or sometimes anterior to snout. There was a slight drop of the mandibles visible a second or 2 before the gapes. Twice the snake "struck" at objects (person w/ camera) more than twice its body length distant, w/ the fangs clearly extended. 2/6 gapes were rapid – the mouth and fangs were flashed and closed. After ≈ 5 minutes of this the snake was withdrawing into a tight S-coil, trying to avert the head (all of this while suspended by

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November 12 (continued) the tail and posterior, the anterior parts suspended but horizontal. Spent the afternoon sorting and packing. Bob got a big ♀ *Chamaeleo johnstoni* just afternoon, and I will try to get her and the ♂ from yesterday alive. After dinner (back to rice and peanut sauce), we road walked from ≈2030–2200 hr on the road down from the field station back around below and up via the trail to Jan and Tom's house. At 2053 hr Jens spotted a small *Leptopelis* ≈3 m above the roadside perched perpendicular to the horizontal branch of a small tree. When placed on the road and poked w/ a finger it gave an open-mouthed unken reflex. Jens also got 2 *Ch. johnstoni* on the trail back. A starry, very starry night w/ perfect temperature – crisp but yet not cold, air somehow sharp and delicious. All the surrounding mountains are clearly demarcated against the clear sky by their black tree covered horizons.

November 13 Yesterday the local workers moved Bob and my bunk into an adjacent room, which had been an office w/ radio transmitter when we arrived, w/ Mike because they are converting the one the four of us <u>were</u> in to an office for Agnes the Radio Woman. Jens had already left his bunk for the couch in the main room because of disturbance from Jim "The Twister" and last night my snoring drove Mike out to the floor. Partly cloudy at 0700 hr and periodic brief showers as we pack up specimens, etc. all morning. Cold and rainy after lunch.

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November 13 (continued) We stayed in w/ a fire, packing and recording. Bob and I are taking out the specimens to date: ≈ 530 specimens, 21 genera, and about ≥ 50 species. We might have 2-3 new species of frogs and a new lacertid, and the Dipsadoboa is problematic if I remember Pitman right. At ≈ 1600 hr, Leo the cook brought us a fresh baked, uncut loaf of bread w/ butter and a jar of local honey. What a rush! For the past month food has usually (almost always) been substenance (and not a lot of it), not pleasure and for the third time this trip I had a flash mental association of especially tasty food w/ eroticism. First, the salami after the walk out of Mubwindi Swamp, which reminded me of the rich juiciness of a woman's crotch; then the cool sweet pineapple at Ishasha Gorge — lovely breasts, warm and smooth to the kiss w/ luxurious hair flowing over them; now this bread and a sense — a largely tactile image perhaps — of soft, thoroughly feminine hips. Are they linked deprivations — in time and, biochemically, in the brain? Really doesn't matter, but reminded me of the "mite on a giant woman in a shower" dream I had on the Zona Protectora Expedition in Costa Rica. Dinner w/ Jan et al., w/ two disturbing notes. She told us of an incident recently in which several Game Guards accosted some Ugandan soldiers, illegally driving cattle through the Forest Reserve to sell them. The soldiers got the upper hand, ordered everyone down on the ground,

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November 13 (continued) and fired repeatedly around their heads. Vincent jumped and ran, convinced all of the others were dead, shed all of his clothes and took 3 days to to find his way under cover of the forest back to Ruhizha — arrived in a delirious state, yelling about everyone being killed when in fact they had returned 3 days earlier. Then as we finished dinner, Bob (who'd hit the scotch) was up to his command performance bit, going after Jens and I w/out provocation for liking "country & western" music ("that shit") instead of classical, monopolyzing the conversation, interrupting, etc. I finally made a sarcastic remark about how maybe opera brought out explosive individualism in people, then shut up as I have little patience left and he is a pitiful target of insecurities if one went on the offensive. Made an excuse & left, and Jim and Jens followed. It's too bad, as he's a good-hearted person when not drinking and the fact this trip has generally gone well owes a lot to his experience. I felt disgusted and went walking from 1945–2100 hr, out the ridge top 2-track toward the ruins of a Greek family's house — saw only some black and gray striped slugs copulating and a tiny _Chameleo johnstoni_ — ~~perhaps~~ perhaps the same one we didn't collect last night —

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November 13 (continued) head down ≈25 cm out from top of the road bank on a grass stem. No frogs or evidence of them in the road tracks in rain pools in general area where I saw frog eggs earlier. Sky was a low cover of dark clouds, their borders evident only on far distant horizons — from under the edge of which I could see Jupiter (I think) and a few stars. Oddly (?) I could see no fires or other lights nor hear voices in the cultivated valleys on either side of the ridge — an eerie silence from my biased perspective and knowledge that so many people live down there, one broken only once or twice by a lone dog barking. Air was cold, but I had on my new warm jacket bought for this trip, and enjoyed the almost electric feeling of the night. I am ready to go home, and not especially looking forward to the next 5-6 days of transit.

November 14 Up ≈0630 hr, unable to sleep. Went out on the slope behind our bunk house, sat on a stump and listened to "Dire Straits": "These mist covered mountains..." while looking out on some, musing about old injuries. Finally noticed Jan's gray-striped tabby cat, parallel to me on a tree limb that juts out from the clearing over a forest trail — a good bet was

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November 14 (continued) all she was thinking of was the prospect (and probably the memory) of a mouse on the trail below. ≈0730hr a tremendous racket erupted from forest below us (toward Mubwindi Swamp), a nearby chimp troop waking up. No telling *what* they were thinking about! Left Ruhizha ≈0900hr, lunch in Mbarara at 1500hr (little bananas on the way) – chicken and rice, including 3 human hairs and a feather! People ride bicycles everywhere here, carrying huge loads of charcoal, bananas, large sacks of potatoes etc. – and today on the road to Kampala I saw a young man w/ an adult coffin (empty?) on his rear bike rack, crosswise – a simple wooden crate, painted light lavender the color of dyed Easter eggs! Mike, on the way to Ruhizha, saw a corpse rolled in a rug on the back of a bike. We arrived at John Miskell's house in Kampala ≈2030 hr after a last 1½ hr of very rough driving – no shoulder, literally thousands of people on the sides walking in total darkness, the glare of oncoming headlights, and crazy drivers – and we 5 jammed in tight w/ packs between our legs and on our laps.

November 15 Bacon and eggs for breakfast, then to CARE office and to the Ministry of Tourism and Wildlife to chase down Moses Okua, Head of the

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November 15 (continued) Game Department, for our export permit. Lunch at the Sheraton Hotel w/ Tom & Jan et al., back to the Ministry to look for Mr. Okua — we'd become concerned about our Nairobi connection and decided to try to leave Uganda tomorrow. Looks like half the vehicles in Kampala belong to some non-governmental organization or Ministry of Whatever! Mr. Okua shows up at 1500 hr w/ Joe Banaducci, an animal exporter I'd met years ago in Miami, and suddenly we are crammed in a sedan w/ them, hurtling out to a rundown industrial district to see his frogs, lizards, and snakes. General appearance of the place was grotesquely shabby and dirty. Two representative events: he threw a gecko back into a cage after showing it to us; he had some spitting cobras in a box and said "I wish they'd hurry up and die, they're too dangerous to keep here — if I had a freezer I'd kill them." He handled chameleons unnecessarily roughly, as if they could deliver a bad bite. Bob and I were very uncomfortable w/ the whole scene and unsure as to why Okua wanted us there. Joe had ≈ 10 pickled reptiles which he offered us, and Bob was careful to say we are here on a project for CARE — asked Mr. Okua directly if he wanted us to take the stuff and identify it, and Mr. Okua

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November 15 (continued). said yes. He is to meet us at 0900 hr tomorrow at the Ministry office here w/our permit. Got them to rush us back to CARE in Kampala and then Jan took us to Kenya Airways where we successfully moved our exit up to tomorrow. Then out to John Miskell's house for the night. At 2130 hr saw several Bufo "regularis" in the yard and caught one of appropriate size to travel home for Anna Graybeal.

November 16 Another fitful day, for Bob too – we are anxious about today's trip, getting the export permit, etc. Also Kampala is muggy, even at 0400 hr. Good breakfast, then Mike asked Bob to tell him some "war stories" about working in Africa – if I hear one more fucking "Back in '71 in Somalia I was..." I'll throw up. Bob obliged at length. Got to CARE, got a FAX message that changes our schedule 4 airlines between Nairobi and San Francisco, a layover 0200–0600 hr Monday in LA, then get home Monday AM – we will try to switch to British Airways in Nairobi. Jesus Christ what a mess! But Bob soon returned w/ our export permits. Out to the airport w/out lunch, and our plane arrives more or less on time. At this point I just wanted to get out of Uganda w/ the live animals in good shape. Arrived in Nairobi ≈1600 hr after a nice flight on the infamous

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November 16 (continued) Kenya Airways ("Pride of Africa") — some aerial views of the Rift Valley, Ngong Hills, and Nairobi National Park. Get to the Kenya Customs Office — the guy is way up in a booth, I look up at him — say "Good afternoon Sir." He says "This VISA is expired." Some discussion, then I passed through w/ a VISA good for one week. Off to the Hotel Boulevard, where Bob talks us into a room, even tho the place is "full" — then to a fine dinner at an Indian restaurant Mike McRae recommended.

November 17 Breakfast buffet in the Hotel (I try for small portions, having learned via the scales at Mishell's house that I've dropped 10-15 lbs. on this trip), then to British Airways where a nice, efficient person in outrageous dreadlocks booked us on tonight's flight to SFO via London, but sends us to the nearby Pan Am office for their endorsement — no problem, and now we skip all those continental stops and LA, just a layover in London then on direct to SFO — we should actually get there 3 hrs. earlier than our earlier itinerary! Off to visit an Indian friend of Bob's, then shopping, lunch, more shopping, then a last shower at the Boulevard. We will dine here on pepper steaks and Kenyan papaya wine, then off to the airport. Since we now run no risk of the checked baggage sitting in the sun, I packed the live animals there and won't have the considerable

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November 17 (continued) worry of having Atheris discovered in my hand luggage. No customs problems in Nairobi, tho Bob got a hilarious outright bribe demand re Kenya vs. U.S. currency: there was a $6 difference between his declaration form and his cash, and the large jovial inspector said "Therefore I will enjoy this $6," and I guess he will!

November 18 Slept ≈4-5 hrs on the plane to London, woke up twice. First time thinking a pale, light silvery stripe stretching straight away out the window was the horizon of dawn – but it was really a bright light from up front on the plane, shining back on the wing's leading edge. We seem to be in some separate, detached reality up here, in a giant airplane in the dark sky, one that requires an entry passage. Science tells us that the invisible portal to be breached is gravity – but from experience w/ Fawcett airlines over Peru and United at Denver, I know the barrier is fear. Second, I woke up thinking of making love outdoors on a beautiful day:

We could be lions
in the grass, tails
twitching.
You could swat me
playfully.

at ≈1030hr (W. coast of U.S. time) and mid- to late afternoon (local time) I saw the sun rise

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November 18 (continued)

from the SW, as we passed over the Greenland ice sheet. A few minutes earlier it had "set" over the horizon only to reappear as we continued on our polar route. Arrived SFO on time.

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December 10 La Selva Biological Station, Prov. Heredia, Costa Rica
Arrived here ≈1000 hr after a weird trip. I haven't had one good night's sleep since returning from Uganda on November 18 — caused by jet lag, Claudia moving out (a big surprise), and perhaps malaria medicine which I am still taking. Left Berkeley at 0500 hrs on the 8th, taken to San Francisco airport by Wendy Roberts for flight to San José. Waved goodbye to her, went inside, and found out I was booked on a flight out of Oakland! No problem tho, as American Airlines had one out of SFO anyway. Arrived in San José on time ≈1900 hr, but my bags had missed connecting flights in Dallas and so I had to return to the airport on the 9th to get them, go through customs again, etc. ~~Rode~~ To airport w/ a pachuco whose cab was in constant serious danger of falling apart, shaking badly even at our very low speeds, etc. Had late morning coffee w/ Carmen Rojas. Rode out here w/ Blake Edgar and Melissa Merz, friends from Berkeley. After lunch we walked through the Cantarana (full of water, saw quite a few tadpoles but no schools) and around the loop trail, but saw no herps. Deborah Clark says that Edwin Paniagua is worried we have too many peccaries here now and they are killing the snakes. It is chilly in

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December 10 (continued) San José and here, and all day a strange light rain has fallen. Walking back from dinner, I followed a Tamandua from ½ way to the south end, where it dropped off and almost immediately dug a shallow hole in grass ≈ size of ½ its head and for >1 minute ate some tiny colonial insect – I couldn't see for sure if ants or termites tho from vague appearances I suspect the former. The insects were swarming over its head while the anteater lay on its chest, forelegs extended flat on either side of the excavation, and I could see head muscles pumping rapidly. Never saw any indication the animal was aware of me or my flashlight (I have seen them feeding diurnally here before too). Walked to far end of Cantarana boardwalk and back to big lab clearing – saw only 1 Rana palmipes and heard a few Hyla, all of this ≈ 1900-1925 hr. Went back between ≈ 2000-2200 hr, searching the Cantarana Swamp and returning via SOR. We saw only another Rana palmipes on a leaf floating in the swamp, and heard scattered Hyla. One adult (cf. ♂) Agalychnis callidryas was alert on a small branch ≈ 4 m above the E. end of the boardwalk. On the SOR we saw a juvenile Eleutherodactylus fitzingeri on a leaf ≈ 30 cm above ground; a juvenile Hyla elaeochroa on a leaf ≈ 1 m above ground; and a large (cf. ♀) A. callidryas on a large palm leaf ≈ 5 m above ground – alert, as if scanning for insects or about to jump (which it didn't over a period of ≈ 2-3 minutes. Just as we

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December 10 (continued) reached the station, a small *Dasypus novemcinctus* jumped at Melissa's approach, then careened off into the underbrush. Several people have noted that the weather now is unusually cold - Jack Ewell (Botany, U. Florida) says it's the coldest he's experienced here, beginning in 1964!

December 11 Up for breakfast after a pretty good night's sleep (among the very few since returning from Uganda), then laid down and slept til after 1000 hr. Blake & Melissa walked around the CES and CEN, saw *Dendrobates*, *Dasypus*, ~~Dasypus~~ *Agouti*. Drizzles off and on all morning and a shower after lunch. The *Iguana* breeding season is on: can easily see several big orange males from the bridge - though they have a look of sad stranded ectotherms in this weather! From ≈1400-1630 hr Blake, Melissa, & I walked SOR, SHO, SUA, CC, CCL, SOR - all the while in a cool drizzle that twice got strong enough we donned panchos. No cat tracks. At ≈400 m on the Sendero El Suampo Melissa saw a *Kinosternon leucostomum* adult dive into the bottom of a ≈15 cm deep trickle of a stream, taking refuge under a dead leaf in a cloud of mud. When I held the turtle it alternated drawing in and closing the plastron w/ reaching out the head and snapping at my fingers. When released at the surface it repeated the disappearance into a cloud of bottom mud. From ≈1945-2145 hr walked w/ Blake, Melissa, and Dacia (physician from

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December 11 (continued) Berlin) out the CES to 500 m and back through Cantarana Swamp. No snakes. Swamp is full, rain all day, a few frogs calling (saw Hyla cf. microcephala). Saw 4 sleeping Anolis limifrons — one on old branch on ground, other 3 ≈ 0.5–1.5 m up — 2 on big leaves, one on vertical tendril of small leaves; all on leaves faced up the leaf (opposite of chameleons?). Saw 1 adult Agalychnis callidryas on stem, alert, ≈1.6 m above ground on a slope ≈ CES 300 m. I take it that the various Agalychnis we've seen have been foraging, as I've yet to see one in the swamp or any egg masses. [See also December 13, below.]

December 12 A rainy gray day — stayed in and read and wrote. After dinner showed slides from Uganda trip and watched a Bruce Springstein video I brought the Clarks for Christmas. Checked the Cantarana Swamp — scattered frogs calling, no snakes, one Agalychnis saltator 3 m above sidewalk at east end, perpendicular on a small branch.

December 13 Rained all night but clearing to a big blue sky before 0800 hr. Saw 3 Tayassu eating fallen bananas in the lab clearing as I went to breakfast — they look closer in size to an agouti than the javelinas I'm used to in Arizona. From 0815–1045 hr walked w/ Blake and Melissa via CES, LOC, SSO, CCC, and SOR. Saw first Ameiva of the trip, and 5 Tayassu on CCC. By noon it is raining hard. Forgot to mention on December 11 at ≈300 m CES at night I saw a rodent (cf. Heteromys ♂ based on size etc.) run under a

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December 13 (continued) piece of log on a large bare red earth *Atta* mound; when I lifted the log the rodent was in the opening to a hole and ran out - made me think of the shed skin (and sightings?) of *Lampropeltis triangulum* in an *atta* mound, because that snake eats *Heteromys* here. Roland ? (Richmond, California - insects) saw a snake this AM that from his description had to be an adult *Mastigodryas melanolomus*, on a trail. Went to San José via bus in the afternoon, to have dinner w/ the Fogdens and, coincidentally, Jack Longino.

December 14 Returned to La Selva via the OTS car. Blake and Melissa (who will leave this PM) saw frog eggs on a leaf in the Cantarana swamp last night, and a workman told me he saw a *Bothrops asper* yesterday in the Ribereño trail. This AM alternately bright sun & rain. After lunch walked through the Cantarana and out to SOR 700 m to check the swamp below the big hollow *Dipteryx* tree. At 1425 hr a neonate (7 g, 295+103 mm ♂) *Mastigodryas melanolomus* crossed the sidewalk just W. of the Cantarana boardwalk - it crawled rapidly, drew the head back into an almost *Pseustes*-like S-coil when seized, bit and hung on to my finger. Found where a an egg mass of *Agalychnis callidryas* had recently disappeared where Blake told me to look - at the "14 sign" ≈1.5 m above boardwalk on the outer tip of a live *Ficus* leaf (Deborah Clark tells me this fig plant individual has been found nowhere else on the property

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December 14 (continued)

fide Barry Hammel's dissertation. Took photos - must ask Blake about eggs, because I doubt I'd have missed seeing them on earlier nights - suggesting they lasted only a short time. Checked the swamp below big *Dipteryx* - down a steep slope that reeks (in the mind!) of *Bothrops asper*! There is what looks like a dense stand of *Spathiphyllum* to the SE of the tree. Also checked out the waterfall and found the trail and pool above the fall both obscured by large treefalls. At 2033hr during a lull in rain I found a small adult (≈1m TL) *Imantodes inornatus* ≈ 2.6m aboveground in a 6 cm ϕ sappling. The snake was descending a leaf twig to a horizontal branch covered in moss, w/ it's body arrayed in several wide loops - reminded me that *another* (supportive) advantage of body elongation is support on thin structures. By 2038hr the snake had crawled slowly, tongue-flicking, ≈20-25 cm so that it's head had almost reached the trunk. At 2054hr, I stood on an adjacent log to take closer photos, accidentally bumped the trunk, and the snake abruptly turned back up the limb, twig, and extended ≈ 1/3 of its body straight up in space. Hung there a few seconds, then dropped down on the twig, and froze. Scattered *Hyla* calling. At 2200hr I returned to find the snake in the same place; on the opposite side of the sidewalk I saw a *Hyla elaeochroa* perched alert on the leaf of a bromeliad ≈1.5m above ground

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December 15 Rained much of the night and off and on through breakfast, although there are patches of blue sky too. River is once again brown and boiling, even tho' yesterday it had receded and the downstream logjam was covered w/ turtles (*Rhinoclemys*). A carload of us went to Orlando Vargas' wedding to Maria Ester in La Iglesia de Puerto Viejo — the formalities of catholocism sprinkled w/ local easy going. At various times during the ≈ 30-45 minute ceremony, the priest left to turn up the microphone, a woman from the congregation went in the office behind the alter and turned on a light, children roamed here and there, an oropendola screamed from the tree next to an open side door, and so on. Then everyone filed across the street for bocas and drinks, the new bride and groom led off a waltz, and everyone seemed geared for an all day celebration. We came back to La Selva for a late lunch. At ≈ 1630 hr as I walked up to the new lab I saw and heard a loud heavy rain storm come from the bridge a couple of hundred meters away — heard the roar of heavy rain approaching before any drops hit me! At ≈ 1700 hr Lisa (a german exchange student) brought in a bromeliad she took 2.6 m above ground on a tree in the Arboretum, and showed me a *Leptodeira septentrionalis* tucked in the base of one of the lowermost leaf axils (13.5 g, 422 + 123 mm) — snake was wet (all axils contained water) and

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December 15 (continued) possibly in pre-ecdysis condition. Response to handling was to squirm (not especially vigorously) and void visible dark cream, very foul smelling thick fluid from the post cloacal scent glands. Continued periodic rain after dinner. Searched Cantarana Swamp from 1830-1900hr, no snakes, scattered frogs calling. ≈1950-2100hr walked to Arboretum bridge, released Leptodeira, then through Cantarana Swamp. Scattered Hyla calling; heard Smilisca baudini going to and from dinner, near the volleyball court on the N. side of the Rio Puerto Viejo. At 2052hr caught a young Boa constrictor (730+85mm - 140.5g on lab balance - couldn't weigh it because the Dallas Zoo people took my Pesola scales left down here) - it was crawling rectilinearly over a small sapling (where it's tail remained) straight along a horizontal fallen limb ≈10cm in diameter, tongue flicking. Froze in my light. No response to gentle handling other than crawling, but it tried to bite when restrained for measurements. There has been no obvious moon since I've been here, so the forest has been dark at night. Returned at 2145hr and spotted a ♀ Agalychnis callidryas perpendicular on a horizontal branch of the same sapling that last night had Imantodes, ≈5-6m above the trail. At ≈2200hr she was a few cm out the same branch, parallel and facing out, in amplexus.

December 16 Rain off and on all night, Rio Puerto Viejo brown & swollen. Bette Loiselle and John Blake told me they saw an amplexing pair of Agalychnis (sp.?) on the boardwalk railing last night in between my first and second

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December 16 (continued)

trip, therefore not the pair I saw. From 1000-1130hr I walked the CES-CEN-SOC loop, and smelled Tayassu on several occasions. At 1022hr, checking the spot where I onced stepped on a Lachesis at ≈600m ~~off~~ on the CES, I spotted an adult Lampropeltis triangulum crawling in undulatory curves w/ head tipped to ground, slowly (436.8g, ♀ 1075+162mm). The snake was instantly obvious at a distance of >4m, and was completely exposed in dappled sunlight — it was not cryptic! As I dashed up it took flight in rapid undulation, and when seized it thrashed laterally w/ tail coiled, exposing bright belly rings as well. Bit repeatedly and a strong (but not particularly foul) odor was easily sensed. No palpable food or eggs. Rained off and on into the evening, and there are pools everywhere along the trails. Between ~~[illegible]~~ 1945-2015hr I was taken to where three people had seen small snakes: 1 by the River Station by Lisa that we couldn't find; a tiny Sibon nebulata beside the AC lab; and a juvenile Bothrops asper coiled in the center of the sidewalk a few meters from forest edge in the clearing. The latter was in what I think is typical terciopelo hunting posture w/ a coil 2 loops deep and head extended out over a lower loops - got photos (8.6g, 272+43mm, ♀). Scattered Hyla calling in Cantarana Swamp, periodic rain, no snakes. [See below re B. asper]

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December 17 The little ♀ Bothrops asper last night responded to movement near the plastic bag by tail vibration, rapid crawling, and bouts of 1-3 rapid snapping bites to the side or downward against the plastic - seemingly not directed. When I measured the Lampropeltis triangulum she voided a substantial quantity of mostly clear liquid from the cloaca, splattering it over a m^2 or so and making a squirting sound - more coral snake mimicry? ≈1500 hr when there was some sun (but from opposite direction as when she was found) I photographed the snake at the capture site and thought her not so dramatically obvious on the forest floor. When seized she slung more fluid from the cloaca, one drop of which hit me in the eye w/out effect, and bit my hand. A clear starry night - the first impressively so since I arrived. At 1943 hr an adult ♂? Coniophanes fissidens (23.7 g, 330+146 mm) was crawling slowly across the sidewalk ≈30 m W of the Cantarana boardwalk - it squirmed and attempted to bite when seized. At 1952 hr I spotted a small adult Imantodes inornatus ≈5 m above the E. end of the Cantarana boardwalk on a palm leaf w/ multiple "leafules". Snake was extended ≈1 body length out from trunk onto petiole, w/ body in several deep curves and head swept out ≈ 1/3 of each leafule. It did not check the entire leaf surface, but rather seemed to scan the basal part as it crawled ≈ perpendicularly across them. By 2000 hr it had doubled back to the

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December 17 (continued) trunk, ascended ≈40 cm to next highest branch and started out it – thus ≈1.6 m in 8 minutes. When traveling up the snake extended its anterior free of the substratum. When I returned about 2020 hr I couldn't find the snake, and some tourist whom I had directed to it told me it had climbed even higher. There are numerous *Hyla elaeochroa* and some *H. microcephala* calling, and we saw a pair of the former in amplexus. At 2100 hr I spotted an equal sized small adult *I. inornatus* 1.2 m above ground, descending a few cm from a palm leaf to the adjacent trunk of the same tree where I saw this (?) snake higher up on December 14. Snake seemed to freeze in our lights so I took photos and left it. Went to the Arboretum 2200-2300 hr, 0100-0200 hr, and 0400-0500 hr to help Elizabeth Star ("Lisa" above) measure O_2, ph, etc. in bromeliad water. No snakes, but we saw 3 large *Eleutherodactylus fitzingeri* at trailside in the wee hours of the morning.

December 18 I checked the Cantarana Swamp at ≈0530 hr, already gray light, no frogs calling and no snakes. Slept all morning, wrote LSAC permission documents in the afternoon – to collect eggs and tadpoles w/ Wendy, and to work in the Ecological Reserve. At ≈1530 hr I photographed and handled the *Coniophanes fissidens*. When held firmly by the tail, it crawled rapidly, ejected a large drop of fluid from the cloaca, coiled the tail around my finger for ≥2 loops, and w/in ≥1 minute broke off a 61 mm segment. I saw only 1 drop of blood

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December 18 (continued) fall. The tail wagged on the floor in a regular cycle of sinuous curves from posterior to anterior, on which were superimposed (or resulted in?) lateral bending – speed was ≥1 lateral cycle/sec and seemed slower than I remember in Urotheca. At 2 min 48 sec. movement stopped, and after 5 min and 16 sec. I could not elicit further motion by pinching the tail. During tail flipping the piece switched from venter up to dorsum up once, and there was essentially no net change in position after it hit the floor. From 1930-2030 hr I checked the Cantarana Swamp and SOR to 350 m, then out CES to 650 m and back to Station by 2115 hr – no snakes. At 2159 hr I found a small adult Imantodes inornatus on the same palm, ≈1.2 m high, reaching out to the same sapling as last night – virtually even the same posture. At 2205 hr it was still in the same position.

December 19 From 0915-1100 hr I walked SOR, SHO, SUA, CC, and CCC in a gray drizzle – no snakes. At lunch Ronald Suarez gave me a juvenile ♂ Bothrops asper (15.1 g, 320+59 mm) workman found while cutting grass around the comedor – no palpable food. Went to Arboretum w/ Tisa at ≈1430 hr; no snakes. At ≈2230 hr Tisa showed me a large ctenid spider (cephalothorax ≈23 mm) on a bromeliad ≈1.1 m above ground on a palm stump in the lab clearing, eating a small Eleutherodactylus sp. (SVL 18 mm). No snakes in Cantarana Swamp ≈2330 hr.

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December 20 Only brief scattered showers since early yesterday PM, and this morning the river and streams are down to normal level. Sunny, partly cloudy at 1000 hr. From ≈1430-1700 hr walked to Arboretum, to El Salto and on out SOR. In the Arboretum turning logs found 2 Peripatus, 1 amblypygid w/young on her back, and an adult (thin looking) Bufo haematiticus. Saw a juvenile B. haematiticus in leaf litter just out of the lab clearing at ≈1745 hr. Stars out after dinner, no rain yet today. Checked out the Cantarana Swamp ≈2230 hr — almost no frogs calling, no snakes, no substantial rain in ≥36 hrs.

December 21 Leaving for San José today — bright and sunny for such a cool night! Arrived at Hotel Galilea at ≈1530 hr, had dinner w/ Carmen Rojas in Hotel Amstel. Forgot to note that when I visited the Serpentario on the 9th a typically small ♂ Bothrops asper was evidently courting their huge, freshly shed ♀ — crawling along her back from head to tail, jerking his chin down periodically. She was stretched out and the size difference was great enough he looked as if crawling on a limb. They were not in copulo however.

December 22 At 1130 hr, as I lay on my bed in the Hotel Galilea, a powerful earthquake hit — short, but so strong all the plate glass fell out of the pastelaria next door and it made a big crack in the wall of the Hotel lobby. I made it down the two flights of stairs in a few seconds, dressed in only shoes and jeans. By 1345 hr

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December 22 (continued) Things in the city center seem pretty calm, though there have been numerous aftershocks. Picked up a beautiful Agkistrodon bilineatus from Alejandro Solorzano at the Serpentario, captured a few days before I arrived by the park guards at Santa Rosa National Park, Guanacaste Province.

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